MEDICAL REPOSITORY,

FOR

MAY, JUNE, AND JULY, 1806.

Noxious and fatal EFFECTS *of* SEPTIC GAS *on a Family living near the Place of its Evolution: Communicated in a Letter to the Editors, from Dr.* JOHN HENDERSON, *of Huntingdon, (Pennsylvania) dated April* 24, 1806.

ON the 7th of September, 1805, I was called to visit a poor family of the name of Seyer, situate about 12 miles from this place, on Mill Creek, a small stream that empties itself into the Juniata river, and which, at that time, was very low, and emitted effluvia so disagreeable in the neighbourhood of the dwelling-house, as to produce nausea and disgust in all those who were exposed to it.

Upon inquiry I found that the eldest of the children had sunk under its baneful effects early in the season; and the next eldest, a young man, 18 years of age, had been attacked with the common autumnal fever about six weeks previous to my visit, which had been suffered to take its course, uninterrupted by medicine, and that for two weeks past he had laboured under a severe diarrhœa, which had reduced him to the appearance of a skeleton; little or no attention had been paid to cleanliness of person or bedding, and, at this time, he might literally be said to be incrusted with his own excrements. About a week previous to this period, the three next eldest of the children had been attacked with fever of the typhus kind, attended with frequent chills for the first 24 hours, a weak quick pulse, great prostration of strength, a trifling cough, nausea, and inclination to vomit, fetid diarrhœa, frequent bleeding at the nose, and in one of them delirium from the first appearance of disease. In a few days subsequent to my first visit, every member of the family (Mr. Seyer excepted), amounting to 12 in number, was seized with this direful disease; the five eldest of the children soon sunk under its violence; the remainder, after lingering an indefinite length of time, recovered very slowly.

There were some phenomena in the progress of this disease so extraordinary, and out of the common course of nature, which I had never before met with in my practice, that they excited a great deal of speculation in those who were witnesses, and in others throughout this country, respecting the cause to which they should be attributed, and from their rare occurrence I think ought to be recorded. Owing to the extreme relaxation of the cutaneous vessels, and the great tenuity of the *blood*, in three of those to whom the disease proved fatal, for several days previous to their decease, this fluid oozed out from the extremities of the vessels through the cuticle, and stood in minute drops all over the face, chest, arms, &c. and when wiped off, no traces from whence it issued could be discovered by the closest inspection; but after death, a small livid spot appeared wherever there had been any exudation of the sanguineous fluid.

I felt no hesitation in ascribing the disease to the operation of *septic gas*, generated from the putrid animal excretions which surrounded and enveloped the eldest son, and which became so virulent in a short time after most of the family were confined, that it never failed, on my going into the house, to produce an increased flow of saliva, and excite a disagreeable taste, which I thought much resembled the impression made on the throat and fauces by tartar emetic.

In the treatment of this fever, I attempted to follow Dr. Mitchill's method of alkalizing, and diluting the venomous cause, by exhibiting carbonate of pot-ash, lime-washing the walls, and even the floor of the house, ventilation, washing the bodies of the sick and their bedding with soap and water; but through the want of out-houses and nurses, and owing to the terror spread throughout the neighbourhood, it was impossible to have them separated, so that they were all obliged to lie in one common room. To some, in the commencement of the fever, where nausea and inclination to vomit attended, I gave emetics; to others, purgatives of jalap and calomel; and afterwards, in all, I endeavoured to charge the system with mercury as soon as possible, which the highly irritable state of the stomach and intestines rendered difficult: in the latter stages of the fever, I administered alkalies, combined with the cinchona, either in substance or decoction as the stomach would bear it; gave wine freely, and made a liberal use of blisters and sinapisms.

Observations *on the* Use *of the* Lichen Islandicus, *or* Iceland-Liverwort, *in* Consumptions *of the* Lungs.

By James Lyons, *M. D. of Richmond, (Virginia): Communicated in a Letter to Dr.* Mitchill, *dated February* 13, 1806.

In the successful treatment of a disorder so common and so fatal to the most promising part of the human species, viz. the youth of both sexes, as the phthisis pulmonalis, or consumption, I consider every remedy which has appeared from experience to promote a cure, as worthy public notice, and I shall not therefore offer any apology for the subsequent communication. In the spring of last year, 1805, Miss C. D. about 20 years of age, of a constitution remarkably delicate, tall and thin in her person, with a fair florid complexion, after having been troubled most of the preceding winter with an almost constant cough, was confined by a violent pain in her side, frequent chills, and continued fever, while her cough became incessant, unless checked by anodynes, assisted by warm, softening, diluting drinks. I bled her twice, and took away each time as much as her weak condition permitted. She had repeated blisters applied to the sides and breast, and used every other auxiliary remedy suggested by Dr. M'Clurg, who visited her, or by her friends. She, however, continued to decline till her recovery was despaired of while she remained here, and a change of climate, and a voyage to sea, were thought the only resources. These, from circumstances, could not, at that time, be accomplished; she became so reduced as to be confined constantly to her bed, had frequently chills and fevers, pains in both sides so acute, that she could not lie on them, and her death was speedily expected. At this period it was recollected, that Mr. Carnillon, a French gentleman, who left this place in 1804, had sent to Mr. Cherallic, as a farewell present, a box of the Lichen Islandicus, or dry Iceland moss, with strong commendations of the use of it in pulmonary complaints. It was prepared according to the following directions which accompany it:—"Take an ounce and an half of the dry Iceland moss, wash it in hot water, boil it in a quart of water till reduced to a third, and strain it. Of the decoction give three or four glasses, suppose wine glasses, in the course of the day, at convenient intervals. If any advantage can be derived from the use of

milk, and the stomach can bear it, instead of water, make the decoction with an equal quantity of milk and water, in the same manner, and add, at pleasure, sugar, or the syrup of lichen."

I had a few days before commenced the trial of the tincture of digitalis, or fox-glove, with her, which I thought had been of service in some previous cases; but this tincture soon disordered her head so much, that it was necessary to omit it, or to give it in very small doses, as ten or twelve drops once or twice a day, as she could bear it. Under this treatment she soon began to get better, and, in the course of a month, was able to ride in a carriage; after which she rapidly recovered so completely, as to regain her health more firmly than it was before the attack. I have since used the lichen-milk with Mr. J. W. whose situation was similar to Miss D. by the assistance of which he was, in a short time, enabled to leave this place for Norfolk, the air of which was thought preferable for him. The benefit from the Lichen Islandicus in the last case, confirmed my opinion of its efficacy in the first. It makes, when boiled sufficiently, a mucilaginous bitter, not unlike our hoarhound, into which something like gum-arabic was dissolved. I have recently met with an account of the use of the moss, by Dr. Richard Reece, of London, who is physician to the General Infirmary for consumptive patients, in a publication, entitled, "Familiar Instructions for the Medical and Dietetic Management of the different species of Pulmonary Consumptions." He has given an historical sketch of the use of the pectoral liverwort, in affections of the lungs, with an account of the various modes of preparing it. He considers the proper combination of its mucilaginous and bitter qualities as essentially necessary to its success. This he thinks is best obtained in a powder, which he calls farina, and which is given with cocoa, chocolate, or with milk and water. Dr. Reece informs us, that a spurious kind is gathered in the mountains of Scotland, which is much inferior to what is procured from Iceland. The Lichen Islandicus is a remedy unknown to me till the last year, and it is probably not familiar to most other medical practitioners in America. From the experience I had of its good effects, I think it well worth the attention, and solicit those physicians who may have occasion, and an opportunity of using it, to give it a trial, and communicate the result to the public.

A CASE *of* RHEUMATIC SUPPURATION, *successfully treated. By Dr.* JOHN W. MONTROSS, *of Montgomery, Orange County, (New-York): Communicated to the Editors, April* 4, 1805.

IN the latter part of October of the year 1803, I took a man under my care, who had been confined to his bed for about the space of six months, with a disease in one of his thighs, answering to the description given by Mr. Bell of a white swelling of the rheumatic kind. The disease had been in its suppurative stage, I think, at least three months, and discharged, I suppose, betwixt one and two pounds of pus per day.

The man was reduced to the most pitiable state, and his life despaired of. My manner of treatment was, to exhibit about one and a half, or two grains of calomel per day, and as much opium as was requisite to relieve him of pain, which was extremely acute. This method of treatment was continued till a copious ptyalism was induced; I then desisted from the use of the calomel, and continued the opium alone, as occasion required. A strict bandage was applied the whole length of his thigh, and an incision, at his knee, kept open with a tent, through which a probe could be run, betwixt six and eight inches up the muscles, in a cavity of considerable latitude. From the time the ptyalism commenced, the discharge from the ulcer began to decline, and, in a short time, entirely ceased, and the cavity healed. The man now began to regain his flesh at an astonishing rate; and appearing to be in good health, the use of opium was now gradually left off; but, in a short time, he had severe pains in his arms and in the diseased thigh, which again began to tumefy. I again resorted to the exhibition of calomel, and the application of blue mercurial ointment to his thigh. The calomel was continued till a slight ptyalism was induced, which immediately relieved him of pain. This was followed by the exhibition of tonics, for about two or three weeks; and the man has enjoyed from that time perpetual health.

It may be proper further to relate of this case, that a large callous tumour extended round the articulation, and that the limb could not be brought within forty degrees of a straight line, and that the tumour and crookedness continued undiminished after the ulcer was cured.

By my direction he continued, through the winter, to rub the tumour with blue mercurial ointment, which, by spring, resolved the tumour, and restored the limb to its former straightness. My principal motive for communicating the above to you is, that Mr. Bell has spoken so discouragingly of the cure of this disease, after it arrives at a state of suppuration, and recommends mercury for its cure; but not in this stage of it, which, to those practitioners who implicitly follow authors, is a very embarrassing circumstance. If you are of opinion that its publication can be of any utility, you are at liberty to insert it in the Medical Repository.

One circumstance, however, occurs to me, which may not be altogether unimportant to mention. Some time in July I went with the physician who then attended him, and on examining his thigh, we both concluded that there was pus formed a little above the joint of the knee. He made an incision through about three quarters of an inch of flesh, and came to a cavity which contained no matter, and in which he could pass his probe an inch or two around, and in a direction upwards, I think, near three inches.

History *of the* Febrile Distemper *which was Epidemic in the Scioto Settlement, in the State of Ohio, in* 1801. *By Dr.* Peachey Harrison, *of Rockingham County, (Virginia): Communicated in a Letter to Dr.* Miller.

CHILLICOTHE is situated on the southern margin of the Scioto river, and from its mouth, pursuing the most direct course by land, about forty miles. It was settled, if my information is correct, in the year 1796, the same in which the neighbouring settlements were formed; and, as my medical labours were chiefly confined to the settlements included within the compass of twelve miles above, and seven below Chillicothe, and a few miles wide of the Scioto, my observations will not extend to any facts which happened beyond these limits; in which the principal settlements are about the mouth of Deer creek, on the waters of Kinnakenick and Black-water above, and the station and high banks below the town. At this last place there is a prairie, of about one thousand acres extent, all of which, in 1801, was within a single enclosure, and clothed with a luxuriant

crop of corn, which, from the high bank bordering the prairie, you had under your eye at a single view.

From the best information I have been able to collect, I do not find that bilious fevers, excepting a few mild intermittents, were known in Chillicothe and the adjoining settlements, until the year 1799, in which intermittents were more frequent than in the preceding years; and there were, besides, a few mild cases of remittents; but these were not so frequent as to induce suspicion of an unhealthy soil and climate.

This year, owing to an uncommonly fine season, the crops of corn were more abundant than in any of the preceding years, and perhaps than will ever be again on the same lands, for with a very moderate cultivation, they repaid the labourer with eighty, and from that to a hundred bushels of corn per acre.

The summer of 1800, till about the middle of August, was generally dry, and, in consequence, vegetation was not so abundant as in the preceding year, and waters became unusually low; but, during this time, the inhabitants of the town and country enjoyed tolerable health. About the middle of August a considerable fall of rain happened, which swelled the almost exhausted streams over their banks; their waters were of a ley-like colour, and emitted nauseating effluvia. These appearances of the waters of the Scioto were supposed to be derived from its sources, which are said to be in marshy grounds. In a few days after the swell of the Scioto, a large proportion of the inhabitants of Chillicothe fell sick with bilious fever, mostly of the remitting type, and with symptoms of great violence and danger in a majority of cases. About the same time a fever of a similar nature made its appearance in all the principal settlements on the Scioto and its tributary streams; but perhaps the settlement at the mouth of Deer creek suffered more in proportion to the number of inhabitants than any of the others. Several of those in whom the disease proved fatal at this place, I am well informed, turned yellow soon after death, and exhibited marks of putrescency very early.

The general remedies upon which, in the early stages of the disease, the chief dependence was placed, were bloodletting, vomiting, purging, blistering, &c. and these remedies, when early and judiciously applied, succeeded for the most part in giving a favourable termination to the disease. But when timely and appropriate depletion was neglected in

the commencement of the disease, as often happened in the settlements remote from town, instances of fatality were frequent.

The fever abated its ravages early in October; frequent cases, however, of intermittents, were protracted into winter, and a few even till spring. There was but little snow, though much rain during the winter, and the spring of 1801 was unusually wet, insomuch that the waters became higher than any of the inhabitants ever recollect to have seen them. The bottoms of the Scioto, and especially towards its mouth, were, in many places, inundated to the depth of several feet. The sowing of corn was rendered unusually late, by the frequency and violence of the rains, which did not abate until the first of June, when the clouds were dispersed, and the weather became fair and pleasant.

From this time till towards the latter part of August, there was a great deficiency of rain, and it was, for the most part, intensely warm. The herbage languished, withered, and died. Clouds of dust enveloped the way-worn traveller, and the fountains ceased to supply their accustomed waters. During this time the wind generally stood east, sometimes north and north-west. In the latter part of August, the clouds no more illuded the husbandman's hopes; they distilled in genial showers, satiated the thirsty plains, and invigorated decaying vegetation: both September and October were seasonable; and the intensity of the heat was, perhaps, as great in September as in any of the summer months.

Wheat-harvest commenced about the first of July. On Deer creek the wheat was greatly injured by the red rust. From early in July, the mornings were obscured with thick fogs; and, about the first of the month, the bilious remitting fever began to rear its hydra crest on Deer creek. The first cases were neither violent nor long continued, but generally terminated favourably in a few days, either with or without the use of medicine. But its attacks soon became more formidable, and, towards the middle of July, it began to discover violent and dangerous symptoms. Soon after the fever began to prevail on Deer creek, it also made its appearance on Kinnakenic, Black-water, and the Pickaway Plains, which were the principal scenes of devastation this season.

It was also some time in the month of July that it commenced its attack along the high banks, and on Point creek. My own case was the first which happened in Chil-

ficothe. I was attacked about the first of August. Cases of it, however, did not become frequent in town until about the middle of this month, from which time, until late in October, it prevailed pretty generally through town, and many of the cases were very violent, but few of them proved fatal, owing, it is believed, to the timely application of appropriate remedies.

In those places where the fever first appeared, its principal force was spent in the months of July and August. It is proper, however, to remark, that but few of those who were attacked any time in the season, in the most sickly neighbourhoods, recovered so as to be able to sustain any degree of labour or exercise that would induce fatigue, without, at the same time, occasioning a return of the fever; and they were thus kept till towards the last of October in a state of convalescence and relapse.

Cases of pure intermittents, wherein the cold, the hot, and the sweating stages were distinctly marked and followed for a definite length of time by an apyrexia, were, this season, very rare. I believe I did not see one before the middle of October, and until remittents had much declined.

It is a doctrine so generally known and acknowledged by physicians in the present day, that it will be searcely necessary to remark, that during the sickly months, bilious symptoms swayed a universal empire, blending themselves with chronic diseases, with the morbid phenomena of gestation, and even insinuating themselves into the chambers of parturient women.

Having made these desultory remarks with regard to the season and the prevailing epidemic, it will be my business, in the next place, to give a brief detail of the morbid phenomena which attended the commencement, the progress, and the termination of what I shall distinguish by the denomination of the Scioto epidemic.

The premonitory and forming symptoms were chiefly a sense of weariness, soreness, or stiffness in all the voluntary muscles, not excepting those which move the eye-balls, and rendering their motions painful. Pains of the head and bones were frequent, though not constant precursors. A general languor, yawning, and want of appetite, were constant forerunners of the fever.

The immediate accession of the fever was generally, though not always, preceded by a chill or increased sensibility to cold. If pains of the head, back, and bones did not

exist, as premonitory symptoms, they invariably attended the accession of the fever. The stomach was always affected with sickness, often with pain, tension, and soreness. The complete formation of the fever was constantly attended with great prostration of muscular strength. The face was flushed, the eyes suffused and turgid, and a giddiness of the head, with deliquium animi, in an erect posture, almost always attended. The bowels were sometimes regular, often affected with diarrhœa, but most frequently constipated.

The evacuations from the stomach and bowels were, for the most part, bilious, and either yellow or green.

But the state of the arterial system was chiefly to be regarded as exhibiting the character of the fever most faithfully. Generally in the commencement of the fever, the pulse was preternaturally frequent, full, and hard. In a few cases the arteries were stimulated beyond the point of vigorous re-action early in the disease; and when it has been almost imperceptible in the radial artery, I have felt it to beat with great force in the carotid arteries. But if it was easy by the feel to distinguish wrong action in the arteries, it is impossible to describe the various states and degrees of wrong action, as it took place in different subjects, and in the different stages of the disease in the same subject. But its fulness, force, irregularity, and depression, were principally attended to from the attack, until the seventh or ninth day, and often indeed much later. But if the fever ran on, without intermission, for two or more weeks, the pulse progressively passed through the various grades of morbid force until it became typhous. This was not an unfrequent occurrence, when, in the early stages of the disease, adequate depletion was neglected; and, indeed, in one or two cases it degenerated into the typhous state in spite of depletion, carried as far as was thought safe: But I am firmly of the persuasion, that autumnal bilious fevers, of what type soever, will very seldom degenerate into the typhous state, when timely and appropriate depletion has been used; but my experience has convinced me, that winter fevers frequently will become typhous, in spite of the most appropriate treatment.

Hæmorrhages were not frequent occurrences in this epidemic, but when they happened, they were, so far as my observation extended, salutary, by diminishing the force of morbid action; they took place from the nose, bowels, and

urinary passages. In one case that fell under my notice, a quart of blood, at a moderate estimation, was discharged from the bowels of a girl aged about fourteen years. It was shortly followed by a regular paroxysm of an intermittent, and the girl soon after recovered.

Blood, let from a vein in this fever, exhibited a variety of appearances, according to the stage and violence of the disease, and the circumstances accompanying its emission. In general, when blood was let in the first three or four days, it was dense and phlogisticated; but if the fever was protracted, without intermission, beyond the first week, the blood became thin and cruentous, discovering its texture to be dissolved, and exhibiting the appearance of the lotura carnium. When suffered to rest it soon coagulated, but first suffered a precipitation of the red particles, which, at first, seemed to form about two-thirds, one-half, or one-third of the whole quantity drawn; but after being permitted to stand for a few hours, appeared to constitute not more than one-eighth or one-tenth of the whole. This lay in the bottom of the cup, and the supernatant serum was yellow or greenish.

I have said, that the stomach was always in some way disordered in this epidemic. In almost every case there were soreness, pain, and tension in the epigastric region; and one phenomenon I often remarked to attend these affections of the stomach, and which I do not recollect to have seen noticed by any writer on bilious fever; viz. a pain in the corresponding shoulder. That it was sympathetic of the affection of the stomach was obvious, from the disappearance of it upon the removal of the former by an opiate or otherwise. The pain was in the left shoulder, and precisely similar to that which accompanies hepatitis in the right shoulder.

The urinary evacuations were such as generally accompany bilious fevers. In one or two cases which terminated fatally, there was a total suppression, for a considerable time before death, of these evacuations; owing, as I suppose, to an engorgement of the kidneys themselves, as there was no distension or uneasiness in the region of the bladder.

The tongue was always foul, and its appearances served, in some measure, to indicate the different stages of the fever. When it was covered with a whitish scurf, an inflammatory diathesis might, in general, be concluded to prevail; but in the course of a few days a yellowish tinge commonly succeeded, discovering a predominance of bile; and

a dry blackish furred tongue always announced the formation of the typhous state.

Thirst was a very common and a very distressing symptom in this fever; the patient called for either plain cold water or something acidulous, and indeed a desire for acescent drink and food was nearly universal; the vegetable acids were the most grateful; sour grapes, sour apples, and even sour milk, were greatly sought after.

An aversion to flesh of every kind, but more especially to bread, was, without exception, until a salutary crisis, universal.

Regular intermittents were very rare; but this fever had a universal tendency to observe the tertian type. Its exacerbation was about sun-set, and an abatement did not happen till towards the morning of the second night inclusive, so that the paroxysm continued about two nights and one day, or thirty-four hours, and of course the duration of the remission was about fourteen hours. The exacerbation was, in some, attended with a slight chill; but in many it was unaccompanied with any increased sense of cold, and in others the extremities were cold without any general chill; and corresponding with the distinctness of the remission and exacerbation, the abatement was attended either with sweating or without. I remarked upon the whole, that those cases in which the accession was not attended by some degree of chilliness, and the abatement by some degree of sweating, were the most violent and dangerous.

In two cases, one of which fell under my own notice, and of the other I was well informed, both females, the fever terminated in complete and violent mania. Both, I believe, proved fatal; the former I know did. She was so unmanageable and fierce, and her attendants so irresolute, it was found impracticable to do any thing for her. It was about a fortnight after the commencement of the fever that it was changed into mania, and after this change she lived about ten days; during which time she exhibited the fierceness of a fiend rather than of a human being. That her symptoms were maniacal, I was convinced chiefly by observing, that she had particular attachments and aversions. I had seen her once before the supervention of the maniacal symptoms; and the instant she saw me after this, I was recognized by her, and when I came within her reach, she seized the breast of my coat, and I was unable to disengage myself from her grasp for one whole hour; after which, leaving her sight, she

screamed hideously, and without ceasing till I returned again to her bed-side. She could not be induced to swallow the least food or drink; but after taking some of what was offered in her mouth, she would spit it out with violence into the face of the person presenting it, if possible. I would further remark, in regard to this case, that the maniacal symptoms supervened just as the febrile action began to degenerate into the typhous state; and that her pulse, from weak and frequent, became full, firm, and preternaturally slow. Epispastics applied to her ancles during this time produced no blister, and not even the slightest inflammation.

I have, since my return to Virginia, cured a young man of mental derangement which supervened on a fever of several days continuance, by five or six copious bleedings and three or four active cathartics: his memory and imagination were mostly deranged.

The treatment that was generally pursued in the Scioto epidemic will receive our next attention, and this, in the FIRST stage, consisted exclusively of depletion, viz. blood-letting, vomiting, purging, sweating, &c.

Blood-letting was principally relied upon in reducing the morbid force of the pulse. The quantity let at a time, and the repetition of the operation, were regulated by the state of the pulse, and of the other symptoms. From ten to one hundred ounces were drawn in this fever. I lost upwards of seventy ounces myself, and my recovery was rapid.

It is to me matter of great surprise, that so many physicians and patients should entertain such violent prejudices against a remedy so convenient, easy, and, at the same time, in judicious hands, so safe. A physician who is acquainted with any of the laws of the animal economy ought to know, that blood-letting is the most direct mode of depleting the sanguiferous system; and a little reflection would convince him that it is the most eligible in point of ease, safety, decency, and agreeableness.

What comparison is there between the pain of venesection and the sickness and distress occasioned by a vomit or a purge? It is indeed true, that depletion, by the lancet, cannot supersede entirely the use of vomits and purges, but it certainly can in a great measure. I believe I owe my life, under God, to this divine remedy. The lancet, which was the instrument of my salvation, was in the hands of Dr. Edward Tiffin, my preceptor in medicine, who, although bred in Great-Britain, had, by an ample experience in the treat-

ment of fevers of the American climate, received a thorough conviction of the great advantages that may be derived from a judicious use of the lancet, and had acquired a perfect knowledge of those conditions of the system in which the use of it is called for.

On the articles of vomits and purges I would just remark, that the former were seldom prescribed in my practice, owing to the great irritability of the stomach which prevailed in this fever, and which they sometimes increased, and to a persuasion that purges produced a more salutary effect.

When the morbid force of the pulse was reduced by these means, so as to deter from the further use of the lancet, sweating acted like a charm in softening the pulse, reducing its frequency, and in restoring an equilibrium of excitement in the system: until the morbid force of the pulse was subdued, as far as could safely be done by blood-letting, sweating was found impracticable. All the attempts made for this purpose were either attended with a want of success, or only partial sweats were excited: in both which cases the disease was sure to be aggravated.

When the state of the system appeared to indicate the practicability of sweating, I found nothing so efficacious and agreeable as a camphorated julep alone, or combined, according to circumstances, with saltpetre, tartarized antimony, or snake-root. Laudanum was always a valuable addition, and, indeed, the value of opiates, in almost every stage of this fever, cannot be sufficiently extolled. I gave them freely in all cases where an obstinate constipation of the bowels, or a very strong pulse, did not exist. They allayed the universal weakness of the system, the pains of the head and back, but especially the pain and soreness of the stomach. It was necessary to support the sweating for several hours, and sometimes for two or three days, which generally procured a remission of the fever. It was in what may be called the sweating stage of the fever, that blistering was found useful only. It very much contributed, if I judged rightly, to the equalizing of excitement in the system, and to the solution of the fever. Warm diluents were, at the same time, plentifully allowed, such as balm, sage, hyssop, or mint teas.

When, by these means, an intermission of the fever was procured; or, if a complete intermission was not procured, if the pulse, though frequent, was rendered soft, and the skin still continued soft and moist, and if, at the same time, the tongue was moist, and not covered with a blackish or yel-

lowish fur, and the thirst not intense, recourse was had to the bark, which was always given in substance, when the stomach would bear it in this form. I preferred giving it in snake-root tea, as this not only aided the tonic qualities of the bark, but promoted, at the same time, the cutaneous excretion.

In a few instances the fever degenerated into the chronic or typhous state, with weak frequent pulse, dry tongue, delirium, coma, costiveness, or diarrhœa. When this state of the disease came on, the stimulating plan was adopted; opium, wine, bark, alternated with columbo, the camphorated julep, snake-root, stimulant cataplasms to the feet, blisters, nourishing and stimulant aliment. A perpetual stimulation was kept up in the system by some one or more of these articles, accommodated to the existing symptoms, and regulated in their doses and frequency of repetition by the pulse.

Although, in compliance with common practice, blistering was prescribed in this state of fever, yet, I must confess, its utility was not very obvious. Indeed, it appears to me to be a doubtful remedy in this stage, while it was unequivocally beneficial in what I have called the sweating stage of this fever.

These are the observations I have to make with regard to the treatment of the Scioto epidemic; these, however, I consider as of less value to the interests of medicine than those I shall now proceed to make.

All ages, and both sexes, were subject to the prevailing disease, but women more so than men; at least instances of fatality were more frequent among them. Young children fell victims to this disease more frequently than adults. The people of colour were not more exempted in proportion to their numbers than the whites.

It is a fact no less true than remarkable, that those who had been invalids in the country from which they emigrated, have here generally experienced an amendment of their health. May not this fact be accounted for, by admitting that the cause of disease in this climate exerts a salutary and invigorating stimulus upon their debilitated systems? And agreeable to this fact and its explanation is another, of which I have as little doubt, viz. that when health is enjoyed in this climate, and especially in the sickly season, it seems to be more perfect than in those climates which, in general, are more healthy. One appears to enjoy greater vigour of body, hilarity of spirits, and equanimity of mind.

It was rare that a salutary crisis of the fever happened before the ninth or eleventh day, and a solution of it could seldom be obtained sooner under any variety of treatment. It often, however, ran to a much later period before a favourable issue took place, and without degenerating into typhus. A fatal termination seldom happened before the ninth day, but generally upon uneven days between this and the twentieth, and sometimes much later.

With regard to the prognosis, I remarked that a profuse diarrhœa coming on early in the disease was an unfavourable symptom. A copious vomiting of bilious matter, especially of greenish, indicated a dangerous state of disease. Partial sweats, with cold extremities, insensibility, and delirium, or great restlessness and tossing, were all portentous of a fatal issue. It was a favourable symptom when the paroxysm was introduced by a chill, and terminated by a moisture. Flatulence of the stomach and bowels was a salutary appearance. The tongue becoming moist and clean, was a sure sign of a favourable solution of fever; as was also a return of relish for bread, meat, and coffee; all of which were almost universally loathed during the existence of the fever.

The causes to which the production of the morbific principle which engendered the Scioto epidemic is to be referred, will next claim our attention.

Every student of medicine cannot but be deeply impressed with the importance and great utility of medical history, in ascertaining the true causes, progress, and relations of diseases. When we admit that the same causes will always, in all places, and under all circumstances, produce the same effects, or at least effects essentially the same, it becomes obvious that medical history can alone enlighten this dark path of science, and by discovering the identity or difference of morbific causes, must also discover the essential identity or difference of diseases themselves. Every portion of medical history then must be valuable, and he who contributes but a few facts, contributes so many precious materials for the erection of the Temple of Truth. It is only from an expanded collection of facts, drawn from different quarters of the globe, that medical truths can be educed; doctrines built upon a partial view of things cannot be relied on; and hence the decay and final demolition of all the systems of medicine hitherto erected. But we would not be understood as being unfriendly to system in medicine. On the

contrary, we are in favour of accumulated materials being incorporated into systems from time to time, as being the best way to detain and fix fugitive facts, until by successive improvements, and a more extensive collection of materials, a fortunate genius, in some future age, shall arrange them into a system as durable as time itself.

But to return to my subject. Humidity appears to be one of the characteristics of this climate. This is evinced by the frequency and density of the fogs. I also infer this from the great tendency things that are laid by have to mould, even in the most airy situations, without being used. It is also a proof of this, that caustic lime kept in the driest situations slacks in a few days; of this I made decided trial. The same inference is to be drawn from the coolness of the nights and the heavy dews.

The prevalence of the fever was almost exclusively confined to those tracts of country which lie low, and for the most part along the water courses: the soil is silicious, with an intermixture of vegetable mould, rendering it extremely luxuriant, and affording abundant nourishment for most kinds of plants.

Prairies are extensive openings, made so either by nature or art, and covered with a luxuriant growth of sedge grass and various kinds of weeds. They are generally situated on the bank of some water course, and bordered on one side by what are called stools or benches, which are sudden transitions from first to second bottoms, rising often almost perpendicularly twenty or thirty feet from their base. These benches are most remarkable along the Scioto, and no doubt have once been its bank; but the river gradually shifting its channel towards the opposite hills or highlands, has left extensive and inexhaustibly fertile low grounds; but in some after time to be destroyed by the same power by which they have been formed. At the foot of these benches the ground is lower than towards the margin of the river; hence the water stagnates here.

In autumn and winter the growth of the prairies falls, and commences putrefaction, which is not, however, completed until the next summer, when, by the action of a hot sun, miasmata are generated, volatilized, exalted, and diffused through the surrounding atmosphere. Hence these prairies are the most fruitful sources of the febrile cause. In these the hydra dwells, nor can all the arrows from the quiver of Apollo subdue this hideous monster. They only

augment his fury and increase his destructive rage; and it will be a labour no less than Herculean to destroy this pestilential foe. In a serene summer's day, when the sun is elevated in his meridian strength, a stench almost intolerable arises from these moist prairies: and the humidity with which the superincumbent air is loaded during the hot days, is precipitated, during the cool nights, in copious dews and in dense vapours.

Another phenomenon which I had frequent occasion to remark, was, that the leaves of the under growth in low rich grounds were generally in spots, and often totally destroyed long before the autumnal defoliation.

In those places where febrile diseases most early and most generally prevailed, but especially on Deer creek, the wheat was very much injured, nearly spoiled by the rust. It was what is called sick wheat, so called because bread made of this wheat was supposed to nauseate the stomach, and even to excite vomiting.

I observed iron to rust sooner than I had been accustomed to see it in any other place: the dryest situations would not preserve it from superficial oxydation.

From the observation of these and various other facts, I was deeply impressed with sentiments favourable to the theory of Dr. Mitchill, relative to the nature of the pestilential principle, viz. that it is the septic acid, formed during the putrefaction of vegetable and animal substances. Every circumstance favourable to the generation of this deleterious principle exists here in an eminent degree; putrefying vegetable, and perhaps animal substances in abundance, high degrees of heat, and a low and humid soil: and supposing this septic compound to be elaborated in large quantities, the means provided by nature for arresting its destructive tendency with respect to animal beings, are comparatively few, the prairies being for the most part entirely bare of trees. Much, no doubt, is absorbed by vegetables, and converted to the purposes of their economy; and besides this, I know of no other means for despoiling this general foe of men and beasts of its destructive powers.

When the miasmatic principle had not sufficient force to produce morbid excitement in the whole sanguiferous system, or when the whole system was unsusceptible of its noxious stimulus, it frequently appeared under a variety of local affections, according to the local susceptibilities of the subject, as head-ach, opthalmia, ulcerations of the gums,

colic, dysentery, &c. It seldom however appeared under the two last forms; but opthalmia and ulceration of the gums were frequent occurrences. The palpebræ of the eyes were, in some instances, suddenly distended with serum to such a degree as to give them the appearance of a bladder, and to close up the eyes completely. The œdema of the eyelids was frequently unaccompanied with inflammation of the adnata. But I have seen the œdematous swelling extended to the adnata itself, elevating it considerably above the cornea.

The sore mouth, in its commencement, had very much the appearance of being occasioned by mercury. The teeth were sore, the gums spungy and red where they joined the teeth; they were at this time, and during the whole progress of the complaint, considerably painful: in a few days the gums began to separate from the teeth, and to slough off, so as to leave the teeth bare in many instances quite down to the jaw bone. The gums had now a gangrenous appearance, and the teeth were rough and eroded obviously to the eye. It was uncommon for the gums and teeth of the upper and lower maxilla to be affected at the same time, and even for all of the same jaw; but it was usual for one or two teeth of the same jaw, and the gums surrounding them, to become sore first, the soreness gradually extending itself to the contiguous teeth and gums.

A case of this kind existed, for several weeks, in a lady of a delicate habit, and who had been previously exhausted by fever; and, notwithstanding the use of every thing prescribed by her physician, and suggested by her friends, the affection of her mouth became worse, and spread more and more. A copious excretion of saliva was very troublesome, allowing her no rest by day, nor sleep by night, impeding mastication, and destroying a relish for food to such a degree, as to threaten death from mere inanition. I was at length consulted. From the eroded appearance of the teeth, and from the ulcerated condition of the gums, it immediately occurred to me, that these affections had been induced by the agency of an acid, (perhaps the septic). I accordingly directed the mouth to be washed frequently through the day with a solution of pot-ash, mixed with a little of the bark. This was successful in a few days beyond my expectation, without the aid of any other external or internal remedy; the gums put on a healing aspect, and, in a short time, the deficiencies of the gums, occasioned by the ulcerations, were obliterated by a growth of new parts.

I prescribed the same remedy in a variety of other cases, and with uniform good effects. Lime-water was prescribed with the same view in a few cases, but with what effects I am uncertain, not having these cases immediately under my inspection.

It is, however, unwarrantable, from these experiments, positively to conclude, that the pot-ash was of exclusive utility; the bark may have had its share, or it may have been the efficient ingredient in the prescription. I gave the pot-ash in no instance alone, neither did I the bark with this view; but I am induced to believe, that the alkali was the most efficient ingredient, and chiefly from the following consideration; the lady above-mentioned had taken of the bark, with a view to remove her fever, and to restore the tone of her system, before the alkaline solution was prescribed. Now, although the bark in this last case was not given with the same view as when mixed with the alkaline solution, yet the effect must have been the same; in both cases it would be diffused through the mouth, and brought in contact with the disordered parts: but when it was given as a general remedy, it produced no favourable alteration in the local disorder; but, on the contrary, when it was mixed with an alkaline solution, and applied topically, an amendment was shortly discoverable.

The ravages of the morbific principle were not confined to the human species only; they were also extended to some of the brutal species, and among these horses and cows were the principal sufferers. The yellow-water, which is believed to have the same remote cause with the bilious fever in human beings, proved fatal to a great number of horses: some farmers were reported to have lost their whole stock.

In different parts of this country, in the State of Kentucky, and in various other places, horses were subject to a distemper this season, in which their lips, gums, and tongue were affected at first with blisters, which soon became gangrenous, when considerable portions of the morbid parts sloughed off, leaving deep and sordid ulcerations. In some instances, through neglect or ignorance of the disorder, the tongue was completely destroyed, and death was the inevitable consequence. The existence of the complaint was detected by their not being able to eat, and by the copious discharge of a ropy slaver. The complaint, in general, readily yielded to timely and proper applications; astringents and

alkalies were found to be the most efficacious; oak bark, dog-wood bark, alum, copperas, pot-ash, &c. were all used with success.

The distemper which proved fatal to cows, was called the bloody murrain. From the opportunity I had of judging, it appeared to me to be in cows what the yellow-water is in horses. I bled a cow a few hours before she died with it; her blood discovered a complete dissolution, and when cooled, the proportion of the red globules to the coagulable part, was not more than one to fifteen. She discharged from the urinary passages, and from her mouth and nose for some hours before her death, a cruentous matter.

REMARKS *on the* BILIOUS, *or* YELLOW FEVER, *with some Hints for the more free and frequent Use of* MERCURIAL MEDICINES *therein. By Dr.* JOSEPH COMSTOCK, *of South-Kingston, (Rhode-Island).*

THAT grade of the bilious remitting fever which is accompanied with a yellow skin, and a general increase of malignity in all its symptoms, has obtained the name of *yellow fever*. This grade has generally been confined to our large and populous towns, where the causes which aid in its production, as heat and bad air, are supposed more particularly to exist; but experience has proved, that the same causes, existing locally in country places, in seasons favouring malignant diseases, have produced a disease quite similar in those immediately exposed to their action.

Notwithstanding the contrariety of opinions expressed by writers upon the yellow fever, I agree in opinion with those who consider it a disease originating in our own climate; and, I think, that the idea of specific contagion must be ultimately exploded.

The agents immediately active in its production, caused by heat and bad air, appear to be,

1. A greater quantity of bile secreted.

2. The degeneracy of this bile, by which it becomes acrimonious, or advances near a state of putrescency.

3. By a variety of sub-agents, tending to weaken and injure the body, as cold, heat, damp, excess in eating and drinking, fatigue, passions of the mind, &c.

If these causes are not the true ones, I think they will not

mislead us in practice. To avoid the yellow fever, therefore, it must be our aim to avoid the causes which produce it. For this purpose, the avoiding of places excluded from a free circulation of pure air; the avoiding of large and crouded assemblies, which increase the heat of the surrounding atmosphere, and render the air noxious; the avoiding of a stimulating and heating diet, consisting of a large proportion of animal food, especially if high seasoned, or in the least tending to a state of putrefaction; the avoiding of much spirituous and vinous liquors, the effects of which are both heating and debilitating, and produce pretty much the same consequences that a higher degree of external heat would do; the avoiding of long-continued exercise in warm weather, or warm situations, may all be of use, and seem to stand foremost in the ranks of those means preventing a large secretion of bile, and its degeneracy. Irregularity in living, and imprudent exposure to damp and night air, are leading, occasional, or exciting causes, and ought to be carefully avoided. But it is probable, that after all the assiduity of the most careful and temperate, that a redundance of bile may prevail; the next object then is to get rid of it. When there is nothing more than a simple redundance of healthy bile, the milder and lighter kind of cathartics may serve to evacuate it, as sulphate of soda, oleum ricini, &c. and these ought, in warm weather, to be used once or twice a week, by such as would check a predisposition to bilious complaints. But if there appears to be a deviation of the bile from its healthy state, which every one for himself ought to examine, more potent evacuants ought to be used with far greater diligence.

That the bile, which in health gives colour to the stools, has degenerated from an healthy state, is to be known by their appearing darker than usual.

If when any cathartic is taken, they appear of the colour which is usual in health, there is no need of alarm at the quality of the bile; but if they appear of a very dark yellow, of a copper colour, greenish, like rusty brass, or, which is not unfrequently the case, quite black, a more powerful cathartic than either of those I have mentioned ought to be taken, and repeated at least till the evacuation changes colour. It is to be found that many lives have been lost in consequence of this treatment being neglected, or but partially executed.

Physicians have expressed their surprise at the large quantities of black matter thrown up by vomiting in the last stage

of yellow fever; but it is equally a matter of surprise to observe the large quantity of black matter evacuated by stool in some I have seen, who took physic to prevent a fever, and who, though evidently predisposed to disease, were apparently in health at the same time.

When, therefore, the bilious or yellow fever is prevalent, every person, by means of physic, ought to examine the state of their stomach and bowels. If the evacuated matters are changed from a healthy state, the doses of physic ought to be repeated, until it is pretty certain the whole offensive mass is brought away. When a person feels no indisposition, is the best time for this purpose: when diseases of this kind prevail, and have already invaded, it is doubtful whether the strength of the patient will permit so free a use of evacuant remedies as is necessary, especially in our large towns, where this fever has, in some seasons, raged with peculiar violence and malignity. In such extreme cases of pestilence, there is no other way to check its progress, than by evacuating with mercurials the whole city, or all those living near and in the sickly parts of it; to remove from the alimentary canal the poison, before it is by any occasional cause excited into action; as fire, in desperate cases, is checked by blowing up wooden buildings before it reaches them. Experience proves, that previous to many persons being suddenly attacked, they feel no indisposition, and, in some cases, persons at bed-time have mentioned their feeling uncommonly well, and have been violently attacked before morning, and their disease has ended fatally.*

* This was the case with my uncle and preceptor, Dr. DANIEL LEE, who died at *Westerly*, in this State, on the 10th of September last, when the fever appeared in that town in a few cases with unusual malignity.

The plan of trusting to copious and diligent evacuation with mercurials in the disease we are treating of, was his. He, however, fell a sacrifice to its insufficient use. A dose of calomel and jalap was given at the commencement of his illness, which evacuated a degenerated black matter; but unfortunately instead of due repetition, other lighter cathartics were substituted in its stead; upon which the evacuations stopped, and could not be re-produced; and, although in the prime of life (*Æ.* 41) the consequence was fatal. I did not arrive till a few hours before he died, all hopes being then past.

In the summer of 1798, when the fever spread more universally through villages and country towns than perhaps was ever known before or since, and when it prevailed in the city of New London with unusual mortality, it visited also the little town of Westerly, the adjacent town of Stonington, in Connecticut, and other towns adjoining. In the course of this summer and autumn, he (then my preceptor) and myself visited and attended about two hundred patients in this disease, of whom we did not lose

It clearly appears, therefore, that the stomach, bowels, and biliary organs may be extremely disordered before the accession of fever, or any other complaint; for, in such sudden cases, the dejections have been found quite black.

It seems probable then, that when a large quantity of bile is secreted, that the thicker, more tenacious and acrid parts are retained, and line the internal surface of the intestinal tract; whilst the more thin, watery, and diluent parts pass off by the excretories, and are excluded, or taken up by the absorbents. This retained mass becoming acrimonious, and verging to a putrescent state, turns black, and acts as a ferment to the other fluids in the alimentary canal, and to the alimentary matters taken in, and changes them all of a black colour. The process goes on increasing; the mucus which lines the intestinal canal is next attacked and abraded, and, perhaps, no indisposition takes place till this period, when, after the abrasion of the mucus, the intestines are acted upon by this heterogeneous and pestiferous mass, and diarrhœas, choleras, malignant dysenteries, colics, &c. are produced; and in situations, the local circumstances of which favour the existence of diseases still more malignant, the *yellow fever.*

In this case the disorder advancing upward reaches the stomach; its villous coat is destroyed by the prevailing acrimony, and the tender fibres of its composition are then exposed to its direful effects; vomiting is produced, and the black mass in large quantities thrown up, and death soon ends the scene.

To escape from a disease so febrile when a person is already predisposed, and whose local situation renders an attack of the kind dangerous, can only be accomplished by a diligence in the use of proper remedies, commensurate in a good degree with the evil to be avoided.

No medicine, unless some of the efficient mercurial preparations are made its basis, ought to be trusted. The use of mercurials is, I believe, now universally agreed on in this disease, by the most eminent physicians, however they

one to whom either of us was called prior to any other physician. Only one of this number had a real black vomiting; this was a woman living in Stonington, who recovered contrary to all expectation. We saved some by a salivation, who were insufficiently evacuated at the beginning of their illness; but these had all been, at first, the patients of those physicians who were not in the habit of making free use of mercurials. We also recovered two young men who came home from one of the West-India islands with the fever the succeeding winter. Both were cases of great malignity.

may disagree in opinion about contagion and non-contagion. However, one may suppose it occasioned by a redundance of bile, another by the acrimony of the same fluid, or, a third, that the bile has no share in producing the malady, and that the febrile mischief is occasioned by "*septic venom*, or *acid*." All agree in the utility of MERCURY, and that, without this, no other remedy can be depended on, however they may dispute whether collateral aid is best afforded by *acid*, *alkalies*, or *neutrals*. To this remedy then, and to its *sufficient* use, it is my design to call the attention of the faculty at this time: although it has already received the sanction and recommendation of far greater names, yet in these cases the attention has always been divided between that and other remedies, which, so far as I have experienced, have proved hurtful, or of very little consequence; and I am persuaded that I have been called in more than one instance too late, wherein the adequate use of this remedy in the early stage would have saved invaluable lives. The attention of the practitioner in these cases having been divided between this and other remedies which had received the recommendation of as great names as this, the former was in sufficient quantity most unhappily neglected. It has, indeed, become very common with most practitioners to give some mercurial medicines, but they lose the benefit to be derived from them in difficult cases, by not repeating the doses with persevering assiduity. It is not always by one, two, or three doses of this medicine that this complaint is to be cured or prevented. To produce this effect, the operation of physic must be kept up until the whole degenerated mass in the alimentary canal is removed, whether it be acrimonious bile, or septic venom. It is not sufficient that the physician is informed by his patient that the physic has already brought away a large quantity of dark coloured fæces; the doses of calomel, or, if you please, calomel and jalap, ought to be repeated till the evacuated matters change colour and put on a natural appearance. In one case I knew it to be five days before this healthy change took place, although the patient took strong cathartics, and had copious and frequent evacuations every day. In this space he took twenty grains of calomel, with as much jalap, or other cathartics more drastic; eight pills, without calomel, composed of gamboge, colocynth, &c. and an ounce of castor oil. And this person, though easily operated upon, and ordinarily exhausted by the operation of the mildest cathartics, was all

this time able to ride and walk out, and, in fact, did so every day: the evacuation of such a pestiferous mass rather increasing than diminishing the strength. Six or eight of his evacuations resembled melted tar, and were very copious; these were not indeed the first of all that came away, which I thought a little extraordinary, and is a circumstance which might deceive a physician as well as his patient. In the first instance, the jalap appeared to exert its hydragogue quality, and a large watery evacuation was produced; the succeeding six or eight were black as soot; upon the third and fourth days they resembled a mixture of soot, or crude antimony, with sulphur; they then became of a dark copper colour, and gradually on the fifth day resumed a healthy appearance. This person, it must be noticed, although he felt, or thought he felt, symptoms of an attack of bilious fever, which he had had severely a few years before; yet he had now no fever at all, neither before nor after taking physic. For the first four days he lived wholly upon gruel, nor had he at any time preceding eaten, or taken any thing capable of altering the colour of the alvine discharges.

This case shows to what a degree the fluids of the primæ viæ may degenerate before disease actually commences; and this, I think, satisfactorily accounts for the sudden attack and termination of many cases of the fever in our large towns. For what physician, knowing the state of this person's first passages, could have been surprised at a sudden and violent attack of yellow fever, succeeded by black vomit?

I shall conclude this article with a few brief remarks.

1st. That in pursuing the plan of copious and diligent evacuation, we but pattern after our great mistress, *Nature*, which frequently prevents, and sometimes cures this fever, by large evacuations of bilious matter, as in choleras and diarrhœas.

2d. That when the fever actually invades, especially when symptoms of malignity prevail, either in the individual, or in his neighbourhood, no time is to be lost in raising a salivation,* by rubbing in mercurial ointment† at the same time

* It is very surprising, that attempts to excite ptyalism are not oftener made and sooner begun, when we are so universally assured by writers on the subject, that when this has been effected, the sick have invariably recovered, which is a fact our own experience likewise confirms.

† I would here suggest, that an ointment, made by finely pulverizing three drachms of hydrarg. muriat. and mixing it by triture, in a marble mortar, with three ounces of axung. porcin. well washed, and rubbing in half a drachm or more at a time, and repeating it according to the urgency of

that, as far as the patient's circumstances will admit, mercurial purges are used.

3d. That as to the other remedies, they are of little importance in the first stage of this fever, as it has appeared in this country, and claim not a moment's consideration when put in competition with this.

Extract from the Manuscript JOURNAL *of* JAMES M'KAY, *Esq. relating to his* TRAVELS *into the Interior Parts of* NORTH-AMERICA; *containing some Observations on the Trade of the Country, and the Routes by which the Whites penetrate it, to hold commercial Intercourse with the North-western Indians. Written in French but a few Years before the Surrender of the Country to the United States, in* 1804, *and communicated to Dr.* MITCHILL.

THE great carrying-place, situated on the north side of Lake Superior, at about sixty leagues from its western extremity, and nearly five hundred leagues west of the city of Montreal, is the general rendezvous of the British subjects, who carry on the Canadian trade with the interior parts of the rest of America. It is there the merchants of Montreal assemble every summer to receive their furs brought in by the traders, and to deliver them, in return, the goods neces-

the case, would, perhaps, be found more speedy in its effects, and more beneficial than the common blue ointment, and is much easier made when the other is not at hand. The inflammation raised on the skin of the part rubbed, I consider no objection to this ointment, as it is probable that a great part of the benefit derived from salivation in fevers, is the excitement of new action in distant and different parts from the seat of fever; and, on this ground, the inflammation raised on the subject would be highly beneficial, especially as it can be easily prevented from rising too high, by frequently changing the part rubbed.

If this theory of the action of mercury in fevers be well founded, might not cantharides, exhibited in such manner as to excite a slight strangury, be a useful substitute for it in some cases? Of this I have had so little experience that I dare not speak positively; but, from what I have seen, I am so far convinced of their beneficial effects, that I think I can safely recommend them in desperate cases, where there is a probability of a salivation coming too late. Dr. Ramsay, speaking of mercury in the yellow fever at Charleston in the year 1802, says, "When the disease proved fatal, its superior excitement rendered this and every other medicine comparatively inert." There can be little doubt that cantharides introduced into the system, either by absorption, or taken by the mouth, have a superior excitement to mercury, or perhaps any other medicine yet discovered.

sary to keep up commerce with the savages. With these goods the traders penetrate the interior country in canoes of birch-bark, of the burthen of two thousand five hundred pounds. With these they traverse a great number of lakes, go down and up many rivers, and when they find their passage by water impeded, they carry by land on their shoulders, both their canoes and goods, to the lakes or rivers nearest to their route westward.

The principal lakes over which these traders pass, are the Rainy Lake, the Lake of the Woods, and Lake Winnipeek. This last is the westernmost of the three, and also the largest. It extends lengthways, from the 50th to the 56th degree of north latitude, and, in breadth, from the 104th to the 105th and one-half degree of west longitude. The distance from the great carrying-place to the Winnipeek Lake is about two hundred and fifty leagues. There are on the route seventy-two portages, several of which are a league in length, and some no more than sixty feet. The greatest part of the country in this direction is barren, mountainous and rocky. It is inhabited by a wild nation called the *Saulteux* or *Bungis*, who have no fixed habitation, but wander from place to place in search of a precarious subsistence, which they procure by hunting the rein-deer. The chase of these creatures is their chief employment for a good part of the year, excepting the summer, which they devote to waging war against the Sioux, living on the upper branches of the Missisippi.

Several considerable rivers empty into Lake Winnipeek, particularly those streams which flow from the west, and derive their origin from the STONY MOUNTAINS. This is the name of the *chain* or *spine* dividing the waters falling into the Atlantic from those which run into the Pacific ocean. One of the broadest of these rivers is the *Assiniboine* or *Assinipoual.* It arises in the Stony Mountains, whence it proceeds nearly east, across immense, magnificent and fertile plains, and terminates in the Winnipeek, at its south-west angle. About two hundred leagues from the mouth of the Assiniboine, as you ascend towards its source, and on one of its branches called the *Catepoi*, away toward the south-west, is the furthest post of the British traders from Canada before-mentioned. From this station the British traders take their departure to carry on the illicit commerce on the Missouri, with the Mandanes and other nations which dwell within Upper Louisiana.

The distance from this English post on the Catepoi to the part of the Missouri inhabited by the Mandanes, is not more than eighty leagues. The direction is southwardly. The greater part of the way is over plains and swamps of considerable extent, intersected here and there by vallies and streams bordered with shrubby poplars. As there is no water communication known in the north, between the Assiniboine and the Missouri, the British traders transport, during summer, all their goods and skins on horses and mules hired of the natives; and, in winter, they sometimes make use of sleds drawn by two or more dogs.

The country situated to the north of the Upper Missouri is inhabited by the Assiniboine nation. They ordinarily live near the *Tortoise mountains*, which is the elevated ground dividing the waters of the Missouri from those of the Assiniboine in the north. Near the beginning of 1787 I made a journey to the Catepoi, in the north, and to the Mandanes on the Missouri. It took me seventeen days, though I think in summer it might be performed in ten.

On my arrival among the Mandanes, they received me with all possible affability. Several of their chiefs came out of the village to meet me, and would not suffer me to enter it on foot. They carried me between four men on a buffaloe skin, to the tent of the chiefs, where they soon prepared a feast for myself and people. I had brought with me some goods which they seemed to prize highly, as they offered me in exchange the most valuable things they had. I saw among them some guns and lead, which they told me they had exchanged with other nations, who informed them that they got them from the whites. I remained ten days with them, and when I departed they appeared sorry that I left them so soon. The Mandanes, jointly with the Muinitaras and Wattasoons, live in five villages, which are almost in sight of each other. Three of them are on the south bank of the Missouri, and two on the north. Their situation is charming. They are built upon an elevated, smooth, and fertile plain, which extends on all sides to a considerable distance. These tribes cultivate round their villages, maize, beans, squashes, and pumpkins. They also manufacture earthen pots, in which they cook their food, and these endure fire as well as iron. The Mandanes, and the other tribes who live westward away toward the Stony Mountains, are generally as good a people as those who set a great value on the friendship of the whites. I have perceived,

during my different journeys among these nations, that their manners are more or less corrupted in proportion to the intercourse they have had with the whites; while, on the contrary, those tribes who have had little or no communication with them, are of an easy and docile character. They are absolutely in a state of nature, and, remaining in their primitive simplicity, can scarcely distinguish good from evil.

In 1793 and 1794, the British traders sent from the post which they had on the Assiniboine several of their party to the Mandanes on the Missouri. They carried with them some goods for trading; but as these missionaries were sent in different employs, and, of course, had a competition among themselves, they paid double price for their peltry. This made the Indians believe, that goods had depreciated to half their former value. The immoderate desire shown by these unskilful traders to get their skins, convinced the Indians that there was no necessity of engaging, by marked acts of friendship, the whites to return with merchandize. For they now discovered that selfishness alone induced them to bring goods into their country, and barter them away for peltry.

In 1795, authorized by Mr. Zeno Trudeau, Lieutenant-Governor of the Illinois, I went from the Missisippi into the Missouri. The object of this voyage was to open a trade with the distant and unknown nations high up the river, and to discover all the unknown parts of his Majesty's dominions lying across the Continent to the Pacific Ocean. I remained on the Missouri until the present year, 1797, without finding a possibility of accomplishing my purpose. This want of success, and several unforeseen accidents, disappointed my expectations, notwithstanding I was acquainted with the country quite to the Mandane village, between five hundred and six hundred leagues from its union with the Missisippi, in 47° 48′ north, and 111° west from Greenwich. From all I have seen and observed during the stay I made, I think, if the Mandanes and the neighbouring tribes had a regular supply of proper goods, distributed by skilful persons, that the unjust trade enjoyed by the British would soon be broken up within his Majesty's dominions. But to give a solid foundation to such an enterprise, greater capitals would be required than the major part of the individuals in that country possess.

Goods bear an extravagant price at the Illinois. The wages of the hands, and other expenses, are very consider-

able. Besides, in ascending the Missouri, goods must be parted with to nation after nation, not merely in barter, but to a considerable amount as presents; for, without these, the nations will not suffer traders to pass to the upper tribes at all. These people would consume a great quantity of goods, for which uncertain returns only could be expected for several years, or rather until posts should be established regularly among them, up to the fall which the Missouri makes from the *Stony Mountains*, and which, after all the information I can procure, I suppose to be about two hundred leagues above the Mandanes westward, following the turns of the river, and nearly eight hundred leagues from its mouth. The native tribes which inhabit the banks of the Missouri, and the neighbouring tracts, are, the *Ottotactoes*, or *Ottos*, the *Mahas*, the *Poncas*, the *Sioux of the great Bend*, the *Sioux of the Plains*, the *Ricaras*, the *Hocuts*, the *Chayennes*, the *Mandanes*, the *Munitaris*, the *Wattasoons*, the *Shivitons*, and the *Corbeaux*. There are also other tribes who dwell at the foot of the Stony Mountains, of whom I have not been able to gain any certain information.

Several of these nations cultivate the earth, and plant maize, beans, and squashes. I had carried with me seeds of water-melons, musk-melons, and other vegetables. I planted them, and they succeeded very well. I made presents of some of these seeds to the Indians. The fruit was as good as grew at Illinois. The natives were pleased with the fruits, and took good care of the seeds. The land on the borders of the Missouri is in many places a rich and fruitful soil, capable of producing all kinds of fruits and garden stuff, as good as are found in any known countries of the same temperature. These regions are generally very healthy. The natives are consequently subject to but few diseases, and these are almost always the offspring of their intemperance. Among their distempers may be reckoned dysenteries and poxes. But of all these scourges, the most terrible for them is the small-pox. It is true, indeed, they are but seldom attacked by it, but when it makes them a visitation, it causes a mortality as frightful as universal.

Mr. Evans ascended the Missouri to the White River, which is about eighty leagues above the Mahas. There having met a savage nation called the Sioux of the Great Bend, who generally pass their spring and autumn near the banks of the White River, he was obliged to return to the post at Mahas. These Indians having discovered Mr. Evans near

their camp, they pursued him nearly four leagues down the river, and would probably have overtaken him if the night had not favoured his escape. The Sioux till that time had shown very little favour to the whites; and although I had sent them a talk the preceding winter, they had refused to come and see me.

Scarcely had Mr. Evans returned from this fruitless expedition, when I sent them another talk, accompanied with presents of tobacco and cloth, and I prevailed on several of their chiefs to visit me at the Mahas village, for the purpose of receiving a talk from their Spanish Father sent by the Commandant at Illinois. After a month had nearly elapsed, four of their chiefs came with an answer to my talk. I had a long conference with them, and made them such presents as I knew would please them: but all that could be done was, to pave the way to a future good understanding. However, as these chiefs appeared to be very well satisfied when they left me, and promised to speak favourably of the whites to their nation, I thought I might hazard another attempt to penetrate to the west. In consequence of this I prepared my second expedition, which I confided to the conduct of Mr. Evans. I shall here add what is most important in Mr. Evans's journal, before I relate the result of his expedition.

Extract from Mr. Evans's Journal. On the 8th June, 1796, after having received from Mr. James M'Kay, Agent-general of the Missouri company, the necessary orders, as well as men, provisions and goods, I started from the company's establishment at Mahas, and proceeded up the Missouri, with intent to visit the Pacific Ocean. After a tedious and fatiguing voyage I arrived on August 8th, at the village of the Ricaras, situated on the south side of that river, two hundred and fifty leagues above Mahas. There I found some difficulties in getting further. The Ricaras would not let me pass their village and carry my goods to the nations above them; saying they wanted them for their own use, and the like. Finding these my efforts to go higher were useless, I was forced to stay some weeks among them. Several Indians of different nations, particularly of the *Chayennes* and *Caninawis*, inhabiting the Stony Mountains, came to the village to see me. I had a long conference with them. Their chiefs expressed at large the joy they felt at seeing white men. They assured me of their love, and of their attachment to their great Spanish Father, and for all his children who should enter their country. Thinking it necessary

for the success of my enterprize to take possession of a fort built among the Mandanes by the British traders from Canada, I succeeded in persuading the Ricaras to let me go there with some goods. On the 23d September I arrived at the Mandane village, which is about ten leagues above that of the Ricaras, on the same or south bank of the Missouri. There I was visited by the Munitaris and Wattasoons, whose villages are not more than a league above those of the Mandanes. All these people were perfectly civil. I made the chiefs presents of flags and medals. I presented them some other things, which were well received. On September 28th I took possession of the fort which the English traders had built among the Mandanes, and hoisted the flag of his Catholic Majesty. This gave the greatest pleasure to the Indians. On the 8th October several English traders from the north arrived at the Mandane village. They brought some goods. Not having people enough with me, I did not attempt to stop them, or seize their merchandize. I, however, found means of preventing their trade with the natives, and obliged them, in a few days, to quit the territory. I sent with them to the northward Mr. M'Kay's proclamation to all foreigners whatsoever, forbidding them entering his Majesty's dominions under any pretext.

On March 13th, 1797, there arrived from the north, among the Mandanes, a fellow named Jussomme, accompanied by several persons in the employ of the English traders. They brought goods for presents to the Mandanes and the neighbouring nations, for the purpose of inducing them to break with his Majesty and his subjects. Jussomme and his party endeavoured to prevail on the Indians to enter my house under the mask of friendship, and after having killed me and my people, to plunder all I possessed. Several of the chiefs, to whom this man had made presents and given this advice, heard the proposal with indignation, and came and told me of it. However, his gifts had an influence on some of the lower chiefs. They joined him for the purpose of executing his abominable project. But, happily for me, he could not gain over the higher order of chiefs. Several of these came to my house to guard me. They resolved to perish with me in case of an attack. This determination of theirs disconcerted all the plots of my adversaries. A few days afterwards Jussomme and some of his men came to my house, and taking advantage of a moment when my back was turned, he made an attempt to shoot me through

the head with a pistol loaded with buck-shot; but my interpreter observing his design, prevented its execution. The Indians immediately dragged him out of the house, and would have put him to death, if I had not interposed to save him. This man having refused to make me any satisfaction for these outrages, and being foiled in all his attempts, finally decamped with his men, to carry to his employers in the north, the news of his bad luck.

On reviewing all I have collected concerning the designs of the English traders in the north, I am satisfied their intention is to spare neither labour nor expense to maintain a post at the Mandane village; not that they saw any immediate advantage in this, but that they extended their views further up the Missouri, to the nations dwelling near the Stony Mountains, with whom there may be opened a trade preferable, in all probability, to any of the kind on the continent of America.

The general course of the Missouri, from the Mahas to the Mandanes, is almost north-west. It runs the greater part of this distance on a rocky and gravelly bottom. It is flanked on both sides by a chain of rocky and sandy mountains, which, in some places, approach so near to each other as to narrow the breadth of the river, and reduce it to a width of five hundred fathoms. The land near the banks is sometimes mountainous and narrow, and sometimes level and fertile. The two sides of the river are covered with woods, but further back there is scarcely a tree to be found.

The best land is that possessed by the Mandanes. This quality reaches west as far as the eastern chain of the Stony Mountains, which is about one hundred and seventy leagues west from Mandane. It is at these mountains that the great plains and prairies terminate. The country then becomes covered with trees, even to the tops of the Stony Mountains, and it is probable they continue as far west as the ocean.

From the Mahas to the Stony Mountains the country is well watered by different streams, which fall into the Missouri, particularly from the south-west. Several of these are navigable for boats of two or three tons. The broadest of them are the *White River*, whose entrance is about eighty leagues above the Mahas; the *Chayennes*, about seventy leagues higher; the *Bombe*, sixty-five leagues further up; and *Yellow-rock River*, one hundred and twenty leagues more distant still, and about eighty leagues above the Mandane village. All these rivers enter the Missouri from the south-

west. There is also a river which comes from the north-west, and joins the Missouri near the mouth of Yellow-rock River; they call it the *Hay River.* They say it is a fine wide river, abounding with more beavers and otters than are to be found on any part of the continent.

Mr. Evans has measured the Missouri near the Mandane village, and ascertained its breadth to be five hundred yards, which confirms me in the opinion that its source is much further distant than is generally believed. The Indians who live at the foot of the Stony Mountains have indeed a very confused notion of the origin of this great river. But from all I can collect, it appears to take its rise in about the 40th degree of north latitude, whence it runs northwardly (between two chains of the Stony Mountains) to about latitude 49°, then turning to the east, it falls over the chain and descends to the Great Plains, through which it runs eastward to the Mandane country. There is no other cataract in the whole course of the Missouri than this at the Stony Mountains. This fall is reported to be of an astonishing height. According to the situation of the country, and the windings of the river, this fall would appear to be two hundred leagues west of the Mandane village.

Among the innumerable animals found in the Stony Mountains, one species is truly an object of curiosity. It is about as high as an elk, has hair like a deer, and carries horns like a ram.* The horns are curved spirally, and are enormously large; some of them at the root are as much as eight inches in diameter. The animal does not live more than ten or twelve years, because the horns make so great a sweep, and grow so far forward as to make it difficult or impossible for the mouth to reach the ground, and graze the herbage for nourishment. Deprived of food in this manner, as it has no other way of supporting itself than by grazing, it dies. The natives make spoons and cups of its horns. Some of the latter hold enough to satisfy four persons at a meal. Ermines are found among the Stony Mountains; as is likewise a species of wildcat, whose skin is of great beauty, and spotted like that of the leopard. It is probable that in these unknown regions other species of animals exist which are not found elsewhere.

As to the manners and customs of the Indians, I have ob-

* This is the mountain ram (ovis ammon?) described in our Hex. i. vol. vi. p. 237, and illustrated by a figure.

served that they differ very little from each other in the different parts of the continent across which I have travelled. All that I think it worth the while to remark is, that the tribes which have an imperfect knowledge of the whites (being yet in a state of nature) are of a good and pleasant character, while those who have frequent intercourse with them seem to have contracted a great part of their vices, without having acquired any of their virtues.

A CONCISE DESCRIPTION *of the* CREEK COUNTRY, *with some remarkable* CUSTOMS *practised among the* NATIVE INHABITANTS. *Written by Colonel* BENJAMIN HAWKINS, *Agent for the Indian Affairs of the United States South of the Ohio, and communicated to Dr.* MITCHILL, *December* 14, 1805.

THE origin of the name Creek is uncertain. The tradition is, that it was given by white people, from the number of creeks and water-courses in the country. The Indian name is Muscogee. The *g* is always hard in the Creek tongue, as *Muscogee*, a Creek, and *Muscogulgee*, the Creeks. *Chelokee*, a Cherokee, and *Chelokulgee*, the Cherokees.

This people came from the west. They have a tradition, that there are in the fork of Red River, west of the Missisippi, two mounds of earth, and that, at this place, the Cussetuhs, Cowetuhs, and Chickasahs found themselves. Being harassed by wars with the red nations, they crossed the Missisippi, and directed their journey eastwardly, passed the falls of Tallapoosa, above Tookabatche. They made a settlement below the falls of Chatahoche, and spread out from that point to Oakmulgee, Oconee, Savannah, and downwards on the sea coast toward Charleston. Here they first saw white people, and were by them compelled to retire to their present settlements.

The country at present claimed by the Creeks, including the Seminolas, is computed to comprehend an extent of three hundred miles square. Much of it is in the utmost wildness of nature; and yet, although it might be expected to afford game in abundance, the fact is, that a good hunter penetrating it in any direction, finds it difficult to kill enough for his support. Through the whole country there is little fruit of any kind. In some flats there are fox-grapes and

muscadines. The small cluster-grape of the hills is destroyed by fire, and the persimmon, haw and chesnut by the hatchet. A few blackberries in the old fields, and haws on the poor sand hills, and some strawberries, are to be found; but not a gooseberry, raspberry, or currant in the land.

The tracts lying between the Coosa, Tallopoosa, and Chatahoche, above their falls, is broken. The soil is stiff, with coarse gravel, and in some places stone. On the Coosa, above its junction, there is lime-stone. The trees are post, white and black oak, pine, hickory, and chesnut; all of them small.

Above the falls of Oakmulgee and Flint Rivers, the country is less broken than that of the other rivers. The soil and productions are nearly like the former, but generally richer, better watered, and disposed in a more waving form, fitting it for cultivation. These qualities, with a growth of oak, hickory, short-leaved pine, pea-vine, and a tall natural grass, make this a very desirable country. The upland of Oakmulgee is very fine for stock.

Flint River has some rich swamp below its falls for about twenty miles. Its left side is then poor until within fifteen miles of its confluence with Chatahoche. The trees are generally small. The range fine for cattle. Iron ore and live oak are seen near its lower parts.

The extensive region between the last named river and Okefinocau, Alatamaha, and the eastern boundary of the Creek claims, is poor pine land, with large cypress-ponds and bay-galls. The small streams are bordered with dwarf evergreens. The uplands have the dwarf saw-palmetto and wire-grass, and sandy pine barren bluffs on St. Illas. The remainder is a stiff yellowish sand or clay, with large swamps. The growth probably bay, gum, and small evergreens. The whole of the swamps are bogs. In the rainy season, which commences after midsummer, the ponds fill, and then a great part of the land is covered by water. And, in the dry season, it is difficult to obtain water in any direction for many miles. Bees and whortle-berries are plenty in the Okefinocau and other swamps. Where fire does not overrun the woods, the saw-palmetto bears blackberries half an inch in diameter, which are eaten by deer, bears, turkies, and Indians. The root of the China briar grows here. They make of it an important article of food in this manner; they pound the green roots in a mortar, then suspending them in a coarse cloth, water is poured on them. This sepa-

rates a farinaceous substance, which subsides to the bottom of the water. This sediment, baked into cakes, or boiled into gruel, sweetened with honey, is an important article of food with the Creeks. The bog potatoe grows in the swamps, and is sometimes eaten in seasons of scarcity.

The Okefinocau is the source of the river St. Mary and Little St. John's. It is very extensive, and much of it bog; so much so that a small motion will make the mud quiver to a great distance. The ridges in the swamp yield pine, live and white oaks on a good soil, and the lakes abound with fish and alligators. This swamp may be walked round by an Indian in five days.

The southern district of land, between the Chatahoche and Alabama, is better than that on the Flint-river. The Koenecuh rises hereabout, and forms the bay Escambia, at Pensacola. The country seems to be healthy, and has a fine range for cattle. The Tallapoosa, from its falls, about thirty miles to its confluence with Coosa, has some good flat land. This is on the left, and the broken land lies on the right. The good soil extends to the Alabama, and down it for thirty miles. It is watered by fine creeks; but, notwithstanding, there is a scarcity of water in the dry season. All the streams were dry in the summer of 1799, and not a spring of water to be found.

The Alabama has both good land and poor flats in its neighbourhood. The swamp at the confluence with the Tombigbee and low on the Mobile, is low and subject to be overflowed every spring. The land around this swamp is poor broken pine-barren, and cypress ponds, with veins of reeds in the brooks.

Between Alabama and Koenecuh, the land is considerably waved, the soil stiff and gravelly, and in some places red, with pine-forest.

The Coosa rises high up in the Cherokee country. It has two principal branches. On these the soil is rich, with lime-stone. On the fine plains above are many villages of the natives.

The Creek nation is composed of thirty-seven towns or villages. Of these twelve are on the waters of the Chatahoche, and twenty-five on the waters of Coosa and Tallipoosa. The small settlements belong to some one of these. The old towns have exclusively the right of the ceremony of the Boosketuh, soon to be described.

The Seminolas ought to be mentioned here. They are

of the Creek descent. Their name signifies " wild people. They consist of emigrants or runaways from certain of the other towns. Their countrymen call them wild people, because they left the old towns and went abroad, where they made irregular settlements. They inhabit the tracts bordering on the gulf of Mexico, from Apalachicola, including little St. John's and the Florida point. To these they were invited by the plenty of game, the mildness of climate, the productiveness of soil, and the abundance of food for cattle and horses. Hogs might be reared in plenty, was it not for the alligators with which the ponds and swamps abound. The number of their towns amount to seven.

Customs.—1. Among the Creeks a remarkable annual ceremony is performed, called the *Boosketuh.* It is celebrated in July or August. The precise time is fixed by the *Mico* and counsellors of the town, and is, sooner or later, as the state of its affairs or the earliness or lateness of their corn will allow. In Cusetuh these rites last eight days. In some other towns of less note they continue but four days.

This is a most happy institution. It answers the purpose of a forgiveness of injuries among the people. It restores man to himself, to his family, and his nation. The Lethean quality buries in oblivion all past offences, and absolves the Indians from all crimes except murder. It restores peace and order to society, and renews the whole aspect of civil affairs. Ceremonies which produce such powerful effects are not performed without great form and parade. The manner of going through them is as follows:

1st day. In the morning the warriors clear the yard of the public square in the village, and put a quantity of white sand in the centre, where the *acee* is brewed. This quadrangle consists of four buildings of one story, facing each other. Their dimensions are about forty feet by sixteen, and the entrance is at each corner. Each building is a wooden frame, supported on posts set in the ground, and covered with slabs, open in front like a piazza, divided into three rooms, and the back and end clayed up to the plates. Each room is divided into two seats; the front two feet high, extending back half way, covered with reeds or slabs; then a rise of one foot, and it extends back, covered in like manner, to the end of the building. On these seats they lie or sit at pleasure.

The *acee*, called by the traders black drink, is a strong decoction of the leaves of the cassine yapon, a species of

ilex growing in the woods thereabout. They have a regular method of making and delivering it to all who attend. Much formality is observed in every thing relative to its preparation and distribution.

In the middle of the square, the men place four logs of wood, each of the length that a man can reach by extending his arms. They put the ends together, directing them to the four cardinal points. In the middle of these they kindle the fire, as early in the morning as practicable, and always by friction. On this occasion all the *old* fire in the village is extinguished, and the *new* fire is carried to every house, and employed for all domestic purposes.

On the subject of these solemn rites, *Esau Haujo*, great medal chief of Tookaubatche, and speaker for the nation in the general council, declared that his opinion, derived from his early education, was, there is an *Esaùgetùh emissee* (or master of breath), who gave these customs to the Indians as necessary to them, and adapted to their condition; and that to follow them entitled the red people to their care and protection in war and difficulties. He said they considered the *Boosketuh* and their physics as proofs of the goodness of *Esaùgetuh emissee*, who communicated them in old times to the red people, and assured them that by observing the practices they would be singularly benefited.

During the first four days, the four logs of wood are to be gradually consumed by fire.

It is now that the *Pinegungau*, (or turkey dance) is performed by the women of the *pinmutgee* (or turkey tribe), and while they are dancing, the *possau* is brewed. This is a powerful emetic. The *possau* (or decoction of button-snake-root) is drank from twelve o'clock to the middle of the afternoon. After this the *Toccoyulegau* (or the tad-pole dance) is danced by four men and four women. In the evening they dance *Enchaubungau*, and continue it until day-light.

2d day. This day, about ten o'clock, the women dance *Hohobungau* (or the gun-dance). After twelve o'clock the men go to the new fire, take the ashes, rub them on the chin, the neck and belly, and then go and jump head-foremost into the river. They return into the square. Then, the women having prepared the new corn and other provisions for the feast, some of the new corn is taken by the men, and rubbed between their hands and on their faces and breasts. After which they feast.

3d day. They sit in the square.

4th day. The women go early in the morning and get the *new* fire, clean out their hearths, sprinkle them with sand, and enkindle the new flames. The men finish burning the four logs. They take ashes, rub them on their chins and downwards, and afterwards go into the water. After this they dance the *Obungau-chasico*, (or long dance). They eat salt this day.

5th day. They get four fresh logs, and place them as on the first day. They drink the *Acee*, or strong decoction of the Cassine; and, while the decoction of it is boiling, they put some fish and corn in the fire.

6th day. They remain in the square.

7th day. Passed as the 6th.

8th day. They get two large pots, and their physic plants, 1. Miccohoyonejuh; 2. Zoloh; 3. Achenau; 4. Cuppauposcau; 5. Chulissau, (the roots); 6. Tuckthlauluste; 7. Toteculhillisowau; 8. Chofœinsuckcaufukah; 9. Chofemussee; 10. Hillishutke; 11. Totecuhchookhisse; 12. Welaunuh; 13. Oakchonutchico; 14. Cohallewaugee. These plants are put into the pots, and beaten up with the water. The *Elicchulgee*, chemists, or, as the traders call them, physic-makers, blow into it through a small reed: then it is drunk and rubbed over the joints of every one of the men until the afternoon.

Next they collect old corn-cobs and pine-burrs, put them into a pot, and burn them to ashes. Then four virgins, who have never had the menses, bring ashes from the houses, put them into the pot, and stir all together. The men get white clay, and mix it with water in four pans. One of these pans of clay, and one of ashes is carried to the cabin of the *Mico*, and the other two to the warriors' cabin. They then rub themselves with the clay and ashes. After this, two men, appointed to that office, bring some flowers of the Itchauchulepucpugge, which is a sort of dwarfish tobacco, or, as the name imports, "blossoms of the old man's tobacco." These had been prepared on the first day, and put into a pan in the Mico's cabin. A little of this is given to every one present.

The *Miculgee*, (or Kings), and the *Istechaugueulgee*, (or beloved men), then go four times round the fire, and at every time they face the east they throw some of these flowers among the flames. They then go and stand to the west. The warriors succeed, repeating the same ceremony.

Then a cane is stuck up at the cabin of the Mico, with two white feathers on the end of it. One of the *Thloutloulgee* (or fish-tribe) takes up the cane just as the sun goes down, and marches toward the river, all following him. When he gets half-way he gives the death-whoop. This he repeats four times, and comes to the water's edge. They then all arrange themselves as close as they can at the margin of the stream. He strikes the cane at the margin. They then put a fragment of the flowers of the tobacco on their heads and in each ear; and, at a signal given, four different times, throw some into the water: then, at a given sign, all plunge into the river, and gather four stones from the bottom. With these they cross their breasts four times, each time throwing a stone into the water, and uttering the death whoop. They then wash themselves, take up the cane and feathers, and erect them in the square. After which they visit through the town, dance the *Obungau-haujo* (or mad-dance) in the evening, and therewith close the ceremonies of the *Boosketuh*. Such is the ceremonial of amnesty and pardon in the Creek nation.

2. There is another practice called the *Hoithlekillisowau* (or *war physic*), which is described in the ensuing terms: —When young men are going to war, they go into the "hot-house" of the town. This is called *Thlucco* (or the rotunda). It is near the great square; is of an octagonal shape, thirty feet wide, and twelve feet high. In the middle, on a small elevation, fire is kindled. It is the assembly-room where the men, women, and children gather together every evening, to recreate themselves with singing, dancing, and conversation. And in it, sometimes in very cold weather, the old and naked sleep. It is walled and clayed up on the outside, and the entrance is through a small door. In the hot-house the warriors remain four days. They drink the *Micco-hoyonejau*, and the *possau*, and they eat the *souwatchco*, a very bitter root, which has the power of intoxicating or maddening. On the fourth day they come out, have their knapsack ready, and march. This knapsack is an old blanket, containing some parched corn-flour, and leather to patch their moccasins. They carry in their shot-bags a charm, like Obi, a protection against all ills, called the "war-physic," composed of *Chitto-yabby* and *Istepaupau*, or the bones of the snake and of the lion.

The tradition of this physic is, that in old times the lion (istepaupau) devoured their people. They dug a pit,

and caught him in it just after he had killed one of them. They covered him with light wood-knots, and burned him, but preserved his bones. The snake was in the water. The old people sang, and he showed himself. They sang again, and he showed himself a little out of the water. The third time he showed his horns, and they cut off one. Again he showed himself a fourth time, and they cut off the other horn.

A piece of these horns, and of the bones of the lion, is the great war-physic of the Creeks.

3. They have a solemnity of initiating youth into manhood, which is performed thus: This is annually done to the boys, of from fifteen to seventeen years old. Like the other yearly ceremony, it is called *Boosketuh*. The lads take two handfuls of the bitter Sauwatchco, and continue eating it a whole day. They also steep the leaves and drink the water. In the dusk of the evening they eat two or three spoonfuls of boiled grits. This is repeated for four days, and during the whole time they remain in a house. After this they go out, but must put on a pair of new moccasins. For twelve moons they abstain from eating buck-venison, except that of the old ones, and from turkey-cocks, fowls, and salt. During this period they must not pick their ears, nor scratch their heads with their fingers, but use a small stick. For four moons they must have a fire to themselves to cook their food, and a little girl, being a virgin, may cook for them; but their food is boiled grits. The fifth moon any person may cook, but they must serve themselves first, and use one spoon and pan. Every new moon, they drink for four days a decoction of the *possau*, which is a sickener of the stomach, and abstain for these days from all food, except a little boiled grits (small hommine) in the evening. The twelfth moon they perform, they repeat the course adopted on the original four days. The fifth they come out of their house, gather corn-cobs, burn them to ashes, and with these rub their bodies all over. At the end of the lunar period they sweat under blankets, and go into the water; and thus ends the ceremony.

This rite is sometimes shortened to four, six, or eight moons, and occasionally even to twelve days; but the course is the same, and it is always under the direction of the great leader. This man, speaking of a youth under initiation, says, "I am physicing him," or, "I am teaching him all that is proper for him to know." During this preparation, they do not touch any one except young persons, who are under a course with them; and if they dream, they drink the *possau*.

OBSERVATIONS *on the* NATIVE SALT, BEARDED INDIANS, EARTHQUAKES, *and* BOUNDARIES *of* LOUISIANA: *In a Letter from Capt.* AMOS STODDARD, *of the United States Artillerists and Engineers, to Dr.* MITCHILL, *dated New-London, Connecticut, June* 2, 1806.

SINCE my arrival here from Upper Louisiana, the "Medical Repository" has been put into my hands, in which I find frequent mention of the native salt found in that country. The accounts of this valuable article already published, appear to me to be erroneous and defective. Although I have taken great pains to collect information on this subject, yet I dare not be responsible for the correctness of it. The accounts afforded us by traders and others, little qualified to judge of matters of this kind, are so various, and in some instances so contradictory, that it is extremely difficult to form an accurate conclusion; and the one I am about to give must be received with the more caution, as the few notes I have taken on the subject are deposited at St. Louis with my baggage.

Were I to attempt to prove the existence of a salt mountain, of the nature and dimensions described in some publications in the Repository, perhaps I should be charged with extreme credulity. This, however, is fully believed by many people on the Missisippi, though the evidence on the subject, when critically examined, appears to be too defective to authorize such a belief; and to this source must be attributed the many errors in circulation. But that there is a mountain of rock or mineral salt, of considerable extent, similar to those found in Spain, Moldavia, Gallicia, and in various other parts of the old world, cannot well be doubted; and the evidence I have of it, derived from four different sources, I will now proceed to state with as much brevity as possible.

1. About the year 1796, Lieutenant Nolen, an enterprising young man, who had just left the army, made several excursions to the borders of North-Mexico, in pursuit of wild horses, with which these regions abound. He made a map of his travels, which he presented to General Wilkinson. On this map he has laid down a salt mountain, with this remark under it, "*here your friend encamped three weeks.*" This excited the curiosity of the General; and, from some of his remarks, Nolen was led to believe, that

his veracity was doubted. He then very particularly described the salt mountain, and concluded with a strong assertion, that the delineation was correct. The map has no scale, nor are the latitudes marked on it; but from the branches of rivers laid down, it appears very evident, that this mountain is situated at the source of the westerly branch of the Arkansas, and at no great distance from some of the branches of Red River. Nolen is either now dead, or among the Spaniards in the neighbourhood of Santa Fè.

2. The Osage Indians generally resort once a year to the same place, in pursuit of similar objects. I have examined at least half a dozen of their most intelligent chiefs (one of whom lived with me nearly the whole of the summer of 1804), relative to the salt mountain described by Mr. Nolen. Those who have visited it, concur in their accounts of it. They say that it is situated about half a day's journey out of their usual road, or traces, on the east side of the Mexican mountains, and that the want of salt obliges them to visit it. They represent it as a high bluff, or spur of those mountains, from which issues a salt spring, or rather river, navigable with small boats even from its source. They also say that this spring forms the westerly branch of the Arkansas river. This bluff is stated by them to be a solid mass of rock or mineral salt, except a thin stratum of earth on the surface; and that, with their tomahawks, they split it out in large clefts, and load their horses with as much as is necessary for their use. I produced to them a specimen of foreign rock salt, and they declared that the salt before described was of the same quality.

3. In the years 1771 and 1772, Colonel Vego, of Vincennes, Indiana Territory, was engaged in the peltry trade on the Arkansas river. He ascended that river about seven hundred and eighty miles, and then entered what was called the westerly branch of it; the water of which was of a reddish colour, and very strongly impregnated with salt. In the spring, when the freshets rose, the water was much more strongly impregnated than before, and as red as vermilion: the low grounds on each side of the branch were overflowed; and when the freshets subsided, they left a sheet of salt on these low grounds from three to five inches in thickness. This accounts for what the people of the Arkansas village (situated forty-five miles above the mouth of that river) have often told me, that in the spring, when the freshets were up, the water appeared red, and was too salt

to be drunk. The above account I had from Colonel Vego in October last. For solid understanding he has but few superiors, and for integrity but few equals.

4. About ten or twelve years ago, James Mackay, Esq. then a Spanish officer, but now a judge of the common pleas under the United States, explored the Missouri about one thousand six hundred miles, of which he made a map. On his return he stopped among the Mahas, a band of the Sioux, about nine hundred miles up that river, to obtain a supply of salt. They furnished him with a lump, weighing from twelve to fifteen pounds, of what he called alum or rock salt. This surprised him the more, as he had never seen any salt in the country, except such as was manufactured, or was formed by concretion. When asked where they obtained it, they answered, pointing to the south-west, that it was a great way off. From the direction, they probably referred to the mountain laid down by Nolen, which cannot be less than four hundred miles from them.

I believe the people of Upper Louisiana have no other evidence of a salt mountain than what I have stated. The several testimonies I have adduced evidently point to the same object; and although they may not afford satisfactory proof of the existence of such a mountain, yet they prove sufficient to induce a rational inquirer to suspend his judgment till the truth be fully known.

There exist other extraordinary appearances of salt, and much better known: They are annually visited by great numbers of our traders; some are to be found about the head waters of the rivers *Platte*, and *Kanzas*, and others within the dominions of the Osages, only two of which I will now endeavour to describe.

In the country claimed by the Osages, a spring issues from the foot of a hill with great force, and is strongly impregnated with saline particles. Innumerable particles of salt rush out with the water; and as *this* loses its force, *they* fall to the ground, and unite in the vast body. Sometimes, in extreme dry weather, this body will spread over a surface of twenty-five or thirty yards in circumference, and from one and an half to three feet in thickness. The Osages frequently hunt in the neighbourhood of this spring. It not only affords them salt for ordinary use, but they throw their fresh meat into it; which, in a short time, becomes sufficiently salted for preservation. In this way they cure part of their provisions for the winter.

Near the source of one of the eastern branches of the Arkansas, and about one hundred miles from that river, is situated what is called the *Salt Prairie*, of considerable extent. The Indians represent it as about sixty miles by twenty. But an intelligent gentleman, who has frequently passed over, and along the borders of it, makes it include an area of about 25 miles diameter. It is composed of a hard dark-coloured sand, and is entirely free from vegetation. When the moisture of the sand is exhaled by the heat of the sun, this immense surface is covered with fine white salt. The quantity depends on the degree of heat; and when the mercury in Fahrenheit stands at about 96°, and no clouds appear to obstruct the intense rays of the sun, the salt will rise to the thickness of about one inch and an half. In some instances it resembles basket salt; in others it forms an incrustation, and may be taken up, like thin ice, in vast sheets. The dews at night dissolve it, and it wholly disappears. Along one of the borders of this *Salt Prairie* flows the branch of the Arkansas alluded to; the rains frequently drive the salt into it, where it concretes, and is deposited in vast quantities along the banks of it, and even impregnates the waters of the Arkansas for a considerable distance below the junction. I have seen many specimens of this salt of various sizes and colours. A gentleman at St. Louis, a few years since, gathered about two bushels of it; specimens of which have been sent to various parts of the United States. These have almost universally been mistaken for portions of the salt mountain, and hence the origin of the many errors on this subject.

That such a vast surface should be daily covered with salt, may excite the astonishment of those not acquainted with natural history. If geographers and travellers are to be believed, many parts of the world exhibit instances of the kind. There is a similar *Salt Prairie* in California, and another in Abyssinia, both of vast extent. The latter constantly employs several hundred mules in carrying away the salt which is daily raised to the surface of the plains by the action of the sun. The people in Upper Louisiana, accustomed to appearances of this kind, manifest so little curiosity as hardly to take pains to examine them. But to others, not familiarized to the phenomena, the simple relation of such an appearance, however well authenticated, affords to incredulity a subject of sarcasm and reproach.

Before I close this letter, already too long, I beg leave to

offer some remarks on the upper parts of the Missouri, and the *bearded and fair people* mentioned in your Repository.

In the month of June last year, while riding from St. Charles to St. Louis, a distance of about twenty miles, I was overtaken by a Frenchman, whom I well knew, and who asked me whether I had received any news from Captain Lewis? I answered him in the affirmative, and stated the contents of his letters to me which I had then just received. The Frenchman expressed a regret that he did not accompany Captain Lewis, particularly *as he had been in the upper parts of the Missouri.* This observation excited my curiosity, and induced me to question him closely. He then stated, that he had been several years in the service of the British North-west Company, under the direction of Colonel Goodwise, who had a factory or trading house on the *Assiniboine*, only a few days travel from where Captain Lewis wintered among the Mandanes. Colonel Goodwise had it in contemplation to extend the trade of the company, and for this purpose he selected a party, of which my informant was one, to explore the Missouri. To avoid the current, they travelled some distance by land, and approached that river about one hundred and fifty miles above the Mandanes, where they constructed their craft, and from thence ascended by water. My informant observed, that Captain Lewis would be obliged to pass a large cataract or fall, and that *he would find no end to the Missouri.* He alledged, that on the summit of the Rocky or Shining Mountains is situated a large lake, from which the Missouri flows; and that from the opposite extremity of the same lake another river issues, and flows towards the west, down which the party descended, and spent eleven days in exploring it. He represented these mountains as not very high. They caused a rapid in the Missouri of not more than twenty-five or thirty miles, which, with some difficulty, might be ascended with light craft. A lake, with two rivers issuing from it, may appear extraordinary at first view, but I have understood that some of the great lakes in the north-west furnish instances of the kind.

As the account of the *Welch Indians*, published by Mr. Toulmin, was fresh in my mind, I conceived it proper to propose some leading questions to my informant on the subject. I asked him whether he found many Indians in his route? He answered, that very few were discovered before their arrival at the source of the Missouri. I then

asked him whether he found the appearance, customs, and manners of the Indians, at the extremity of his progress, to be similar to those in the neighbourhood of the whites? In reply, he observed, that they found a numerous and very singular nation of Indians near the lake, on the west side of the Rocky or Shining Mountains, who were not in the least tawny, but rather of a yellowish complexion; that they wore their beards, and that, what was still more remarkable, great numbers of them had red hair on their heads. He concluded with several remarks on their dexterity in the chase, and on the great accuracy practised by them in the use of the bow and arrow. My informant left the north-west about five or six years ago; and, on inquiry, I found that he sustained the character of an honest man, and that he had often repeated the same particulars to others. If I rightly recollect (for I write altogether from memory), the Naudowessies, with whom Carver wintered on the St. Pierre, nearly four hundred miles from the falls of St. Anthony, gave this traveller to understand, that a nation of *white people* inhabited the distant regions to the westward.

I witnessed two shocks of earthquakes on the 11th and 12th of February, 1804; of course the theory of Mr. Volney is erroneous. The old French inhabitants say that they are very frequent in that country. Of the two I witnessed, I have some minutes. I have seen pieces of pumice larger than my hat crown. The direction of the earthquake alluded to, was nearly from west to east.

As you hold an important station in our national government, permit me to lay before you the following information relative to the western boundary of Louisiana. I know not whether it can be of any use, or whether it be correct; but it is accompanied with such circumstances as may possibly lead to an inquiry. My informants are men of the first integrity, both have retentive memories, and one possesses considerable science.

1. August Choteau, of St. Louis, states, that while Louisiana was in possession of the French, before the year 1763, a trading house was established near the head of one of the branches of the Arkansas, and on the eastern declivity of the Mexican mountains. Those concerned in this establishment, and I think he was one, vended their goods to the Spanish subjects, who resorted to the store for them, and carried them to the white settlements in North-Mexico. The consequence was, that the Mexican traders, who enjoy

an exclusive privilege, and carry on a monopoly, seized the Louisiana traders and their goods, and the former were sent to the Havannah for trial. On their trial they made it appear, that their trading house was on the *east side* of the Mexican mountains; and as this was found *to be within the bounds of Louisiana*, they were acquitted, and their goods restored to them by a decree of the supreme tribunal. Mr. Choteau says, that from the top of these mountains, and only about an hour's walk from the trading house abovementioned, the Spanish settlements along the *Rio del Norte*, and to the eastward of it, may be discovered.

2. While Colonel Vego, now of Vincennes, carried on the peltry trade near the head of the Arkansas, in the year 1771 and 1772, he had a man in his employ at that time, about sixty years of age. On passing a certain branch, or mouth of a small river, he remarked to his employer, that if he would ascend this branch to its source, he would show him a curiosity. He said that when he was a young man, he served as a soldier, and was engaged as a chainman in running the boundary line between the French and Spaniards. He observed, that the line crossed the head of the branch; that on a large tree, which he particularly described, several marks were made by the surveyors and officers, and that a large plate of lead, or some other metal, with inscriptions on it, was nailed to the same tree, just above the ground, or roots of it. Colonel Vego says that he could easily find the branch again.

Should the above statement prove correct, perhaps the time will arrive when it may be of use.

REVIEW.

ART. 1. *A Sermon, containing a general History of the Town of East-Hampton, on Long-Island, from its first Settlement to the present Time; delivered at East-Hampton, January* 1, 1806. *By* Lyman Beecher, *Pastor of the Church in that Place.* 8vo. pp. 40. *Sag-Harbour.* Spooner. 1806.

HITHERTO, from the commencement of our labours, we have had no occasion to take into consideration, as reviewers, a single discourse from the pulpit. For although we frequently hear the oral exercises, and read the printed sermons of the reverend teachers of religion, yet it has not occurred to us that they afforded much matter to enrich or adorn such a work as ours: and the reason is evident. The holy functions of a Christian preacher are mostly of an ethical or theological kind; while the editor of such a periodical publication as ours, gathers his materials chiefly from the department of physics. Hence it has happened, that works of divinity, however excellent in their kind, seldom contain that sort of information which befits the pages of the Medical Repository; and we have to lament, that few of the ingenious, learned, and devout preachers of the Gospel have given the aid of their talents to our undertaking. The names of Priestley, Channing, Wiley, Cutler, and Warden, form, indeed, honourable exceptions. And it affords us great satisfaction to enlarge this list, small as it is, with the name of Beecher.

The intelligent author of the present discourse has selected an excellent theme. He has prepared an instructive historical memoir on the first settlement, and subsequent progress of the town. In the words of the prophet Joel, he said to the listening congregation, *Tell your children of it, and let your children tell their children, and their children another generation.* He has interspersed through the whole narrative, which must have been the result of industrious research, so much moral reflection, and pious remark, as to escape all censure for having exceeded professional rules, or violated clerical habits: for we discover no token of his being so led astray by history, as happened to the Bishop of

Landaff by chemistry, that to escape the further temptation of evil by being too much devoted to it, he ought to burn up his seductive books.

Mr. B. relates how East-Hampton was settled in 1648, by English emigrants from Maidstone, in Kent, four years after the settlement of the neighbouring town of South-Hampton; how they purchased their lands from the Montauk, Corchoke, Shinecock, and Shelter-Island Sachems: and that they lived for nine years completely independent of any government except their own. He then tells how these puritans found it convenient to become incorporated with the colony of Connecticut; how afterwards they were separated, and annexed, much against their inclinations, to the government of New-York, in 1664; and how from the beginning they made provision for churches, schools, and public defence. It is very remarkable that from the commencement of the settlement at East-Hampton, to 1798, a term of one hundred and fifty years, the parochial duty of the church, though unremitted, was performed by a succession of three ministers only. Its government was at first congregational, but is now presbyterian.

We quote Mr. B.'s own words in the following passage from p. 28. "From the year 1751, to the year 1775, there were the highest bills of mortality. In this period of twenty-four years, the bill of mortality rose twice to 38, once to 37, once to 36, once to 35, once to 32, once to 30; it often exceeded 25, and once rose to 51; this was in the year 1775. Since that time, a period of thirty years, there have been but two years before the present, in which the bill of mortality exceeded 20. It has been as low as 9. In this sickly period of twenty-four years there died 642. In the thirty years since there have died 405, making a difference of 237. The average mortality per annum of this twenty-four years, was about $26\frac{3}{4}$. The average mortality of the last thirty years, is $16\frac{3}{4}$; making a difference of 10 persons annually, notwithstanding the increased population of the town, which has been very considerable.

"The cause of this surprising change is ascribed by many to the death of the prim (privet-hedges), which constituted a considerable part of the fencing of the town; all of which died suddenly and unaccountably about the time that this favourable change took place. But whether it was the noxious quality of this plant, or the noxious qualities of the air on which this plant depended, and which being re-

moved, produced death to the vegetable and health to animal life, I shall not attempt to decide. The disorders most prevalent in this sickly period, were acute fevers, sometimes terminating life in thirty-six hours, and often in three or four days.

"In the year 1726, a remarkable sickness, called the sweating sickness, made its appearance in this place, desolated several families, and threatened a very great mortality. It did not, however, become general. The patients were taken with most profuse sweatings, in which state they continued until death. The same disease prevailed in England about the same time, and carried off one half the inhabitants of many villages.

"The past year has been a season of uncommon mortality. There is but one year in the history of the town that exceeds it. Our bill has arisen to thirty-nine. The sickness most prevalent was commonly termed the dysentery. It did not appear, however, as is supposed to be the case in that disorder, to arise from any obstructions in the bowels; and was, therefore, by others, termed a bilious diarrhœa. It prevailed almost universally; three-fourths of the people being, it was supposed, affected by it in some degree; but its most fatal influence was confined to the aged and to children."

When we reflect on the agreeable and edifying manner in which Mr. B. has executed his task, we feel encouraged to hope, that many of his reverend brethren will follow his excellent example, and instruct their people by reading to them their own history and that of their ancestors. What an amount of hidden knowledge might be brought to light, if each settled preacher would take the trouble to compose a public discourse of the history of the place in which he dwells, and of the people to whom he speaks! The ministers of the parishes in Scotland have procured for themselves high reputation and honour, by the liberal and copious supplies of information they gave to Sir J. Sinclair, when making a statistical account of that kingdom. And can it be doubted, that the preachers of New-York, Connecticut, Massachusetts, and, indeed, all the states and territories of the nation, are equally capable of collecting and publishing the same kind of information in these parts of North-America if they pleased?

ART. 2. *On the Importance of cultivating the Bourbon Cotton in the Bahama Islands. Nassau. 4to.* 1806.

COTTON has become so important an article of agriculture, commerce, and manufacture, that few of the products of land afford so rich and valuable a crop. It is very natural, therefore, that the proprietors of estates in the Bahamas should feel an interest in its culture, since it affords so great a reward for labour in Georgia, Carolina, and the isles which lie contiguous.

The plant is well known to belong to the Linnæan class of Monadelphia, and the order of Polyandria. The species of the genus, which is named Gossipium, are five, or more. And the varieties appear to be still more numerous. The virtuous and indefatigable VON ROHR, of St. Croix, had made profound researches, under the auspices of the Danish government, into the botanical and economical history of this important vegetable production. We once saw a part of his work in print; but it is to be feared that this true philanthropist, together with his discoveries in botany and entomology, was swallowed up in the ocean, on a voyage he was making in 1793, from New-York to the coast of Africa, for the purpose of superintending a peaceful colony, which his king was about to establish among the negroes.

Respectful mention was made of the Bahama Agricultural Society in Med. Rep. Hex. i. vol. vi. p. 53. The failure of their cotton crops was a subject of alarm and disaster to them; but now their spirits are revived, by a prospect of raising a variety of the cotton which will thrive in spite of the insects and the climate, which have hitherto threatened their efforts. In our Hex. ii. vol. ii. p. 273, the reader will recollect, that their cotton crop was noticed as a matter of great importance by an intelligent traveller.

The planters, after having been driven almost to despair, now perceive encouragement and hopes, in discontinuing the culture of Georgian and Anguillan cotton, and in planting instead of it, the cotton of Bourbon. Several of the cultivators bear witness in favour of the superior excellence of the latter. Mr. John M'Intosh, of Caicos; Mr. Alexander Forbes, of Ferry; Mr. John Hart, of Perseverance; Mr. John Anderson, of Camperdown; Mr. Edward Murray, of Ackland's islands; Mr. John Russel, of St. Salvadore; Mrs. Kelsall, of Exuma; Mr. James Wallace, of Long-

Island; and Messrs. James Tait, and Theo. G. Alexander, of New-Providence, have all certified their opinion of its greater fitness for the Bahama soil and atmosphere. The several letters containing this comfortable information, having been read to the Agricultural Society at Nassau, an order was passed for their publication in 1806, with an address from William Wylly, Esq. the Vice-President, to the Planters. This we give in his own words, as conveying a sufficiently clear idea of the society's object:—

"The information contained in the annexed communications appears to be so important to the planting interest of these Islands, that we should deem ourselves guilty of an unpardonable omission of our duty, did we not lay them, without loss of time, before you and the public, and we flatter ourselves we may now congratulate you upon the discovery of a species of cotton, which, under proper culture, can hardly fail, at length, to reward your toils, and to restore the lost value of your lands.*

"The great defect of the Anguilla and Georgia cotton is this: that, although they always produce an abundance of blossoms and pods, yet the trees are so sensibly affected by rains, by dews, and by every change in the weather, that it may be fairly calculated, four-fifths, both of the blossoms and pods in general, fall from the trees without coming to maturity; by which means the most flattering prospects have, four years in five, been disappointed. But with respect to the Bourbon cotton, we do not think ourselves too sanguine when we assert, that it bids defiance to winds, rains, cold, and to all the vicissitudes of the seasons; that, in fact, your grand desideratum has now been attained, in the discovery of a species of cotton, *the fruit of which will not fall from the trees; but, under every change of the elements, will adhere closely to them until it yields its crop.*

"It would be too much to flatter you, that this inestimable plant is not subject (as some persons have supposed) to the ravages of the red bug and chenille; but every good

"* A few seeds of the *Bourbon cotton* were sent, ten or eleven years ago, by Sir Joseph Banks, to the Hon. N. Hall, Esq. and were planted on his lands at Exuma, under the direction of his then manager; who, perceiving that it was *rather difficult to gin*, very wisely condemned, and very carefully extirpated it. Col. Brown, however, happening to hear of it, sent a vessel from the Caicos to Exuma, purposely to procure some of the seed which fortunately had escaped. Since which time this cotton has been planted, though but sparingly, at the Caicos, from whence it has lately found way to the other Islands."

planter knows that the red bug is always to be got the better of by early and continued vigilance; and as to the chenille, they are so destructive a scourge, that providence, in its mercy, allows us but rarely to be visited by them. We have reason, however, to think, that the leaf of the Bourbon cotton may not possibly be so grateful to the chenille as those of the Anguilla or Georgia.

"Upon the whole, we do most earnestly recommend it to you to lose no time in substituting the Bourbon in the place of your Georgia and Anguilla cotton; and we have no doubt, that your known industry, properly divided between the culture of this most certain of all cotton crops, and the making of salt (which we are of opinion is an object of almost equal importance), will relieve you from present embarrassments, and enable you, in a few years, to secure a competent independence for yourselves and families."*

We sincerely hope the expectations of the planters may be gratified, and their industry rewarded by the cultivation of this promising plant.

ART. 3. *An Account of the Malignant Fever which prevailed in the City of New-York during the Autumn of* 1805. *By* James Hardie. 8vo. pp. 196. *New-York.* Southwick *and* Hardcastle. 1805.

THAT portion of our intelligent and careful readers who accompany us in our progress from volume to volume, and watch with us the course of our epidemics from year to year, will remember, that this is not the first publication of Mr. Hardie on the solemn subjects of which it treats. In 1799 he composed a similar narrative of the occurrences in New-York during the prevalence of yellow fever the preceding year. Of this respectful notice was taken in our Hex. i. vol. iii. p. 291.

It is agreeable to find the local events of New-York in 1805, arranged and preserved in a form like the present. As the newspapers perish, or their few surviving files are often difficult to procure, and laborious to examine, collec-

* "The introduction of the Bourbon cane into our West-India Islands, has occasioned the almost total extirpation of every other species of the sugar cane. We trust the introduction of the Bourbon cotton into these Islands will have a similar effect.

tions of papers and proceedings, like the present, are eminently useful. They outlive the perishable sheets of the day; they find a place in libraries; they are consulted as historical documents; and they carry to future generations the connected events of our own times.

Greatly is it to be regretted, that men of industry and resolution, like our author, had not recorded the whole transactions of the sickly season of 1702, in New-York. This would have been abundantly more satisfactory than the scraps of information and scattered facts which have reached us concerning that disastrous year. Instead of turning up the pages where the sufferings of those fatal months might have been recorded, we are forced to glean them from the other works in which they lie dispersed. We will cite one, by way of example, from a very rare work, to wit, *George Keith's Journal of his Travels from New-Hampshire to Currituck*, as printed in London in 1706. Herein the writer relates, that on Wednesday, September 30, 1702, " at the request of Mr. Vesey, the Minister at New-York, he preached at the weekly fast, which was appointed by the Governor, by reason of the great mortality that was then in New-York, where above five hundred died in the space of a few weeks; and that every week about seventy died" (p. 50). This journey was performed after Keith had seceded from the Society of Friends, and had taken orders as a preacher of the Church of England. He visited Long-Island, and travelled from Oyster-ponds to Oyster-bay. At Flushing he had several altercations with the Quakers in their Meeting-house. He preached at Jamaica, Oyster-bay and Hempstead. He baptised a number of persons in Oyster-bay, where some of the people had become attached to a sort of apostate Quaker, named Thomas Case; and his followers were called " Case's crew." They pretended to a sort of new Quakerism, condemned marriage, said it was of the devil, &c. (Keith's Journal, p. 76, 77.)

As we are on the subject, we shall take the liberty of stating what a pity it is that there is not a full medical history of the town of St. George, in Grenada. We should not then have heard of malignant fevers imported from the gulf of Guinea. For we are informed by M. Le Blond, who lived there in 1778, and practised there, that the capital of the island was unwholesome, as were the sea coasts generally, though the interior was very favourable to health; but among the maritime parts near the Carenage, and among the swamps

and marshes of that neighbourhood, the endemic of the region, and the yellow fever, were dangerous enemies of those who had not become acclimated, or who had recently arrived from Europe. He who peruses this author's *Observations on the Yellow Fever, published at Paris in* 1805, may have another inducement, (p. 164) to believe the celebrated sickness at Grenada, in 1793 and 1794, was not imported from Africa, but strictly endemic, local, and uncontagious. Thirty-five years ago its malignity among the residents and natives equalled any thing that has happened since. A complete physical and economical account of that island, from the time of its conquest and colonization to the present, would have shown, that yellow fevers have been coeval with its settlement by the whites, and that it was neither true nor necessary to introduce them from Boullam. When thus we consider that the inattention of our predecessors deprives the present race of the documents of past times, we may as naturally conclude, that our own neglect will as effectually keep from our successors the knowledge and experience of the present day. When events are forgotten, and all traces of them lost, they afford no more instruction to posterity than if they had never been; and thus the world may grow older without becoming wiser. History guards against this, by preserving for those who follow, the records of those who have gone before. We repeat our gratification that Mr. H. has made the present publication.

The facts we have heretofore so amply detailed (Med. Rep. Hex. ii. vol. iii. p. 211), that we need not repeat them. We, however, state for the information of such as may not have seen the original, that it treats of the proceedings of the Board of Health; of the rise, advancement, and decline of the distemper; of the management of the Hospital; the number of deaths; medical opinions, and various other occurrences. To these recourse may be had at all future times. The aggregate number of deaths was three hundred and two, of which one hundred and sixteen were natives, and one hundred and eighty-six foreigners.

We refer those who delight in medical controversy to the book itself, while we extract from it the certificate of Doctors Walker and Quackenbos, that the yellow fever made its appearance among the immured and secluded convicts of the State Prison.

"The undersigned, to whom was referred the request of the Board of Inspectors of the State Prison, to be informed

of the causes of the great expense of the hospital department in that institution, during the present year, and of all such other things relative to the health of the convicts, as it may be important to communicate, beg leave to report:—

"That it appears from inspecting the books of the prison, that from the 19th of May to the 25th of November, three hundred and ninety-one persons were admitted into the Hospital, which is a greater number than had been formerly admitted in the course of a year. The number of patients will therefore explain the corresponding increase of the expenses of the Hospital.

"In order to account satisfactorily for the remarkable augmentation of the number of the sick, it will be necessary to recollect the peculiarly morbid constitution of the atmosphere, which prevailed during the late summer and autumn, not only in the city of New-York, but in a great number of other parts of the State.

"The effects of this condition of the atmosphere were clearly manifested, not only in the appearance of an unusually great number of cases of fever, which, from the beginning of July till the middle of October, amounted to forty-three, but likewise in the great number of cases of dysentery, diarrhœa, cholera, and colic; all of which have a near relation, and frequently arise from different modifications of the same cause.

"There is proof also of the remarkably unhealthy state of the atmosphere, in the singular disposition to diseases, sometimes light and transient, as well as more severe, which existed throughout the months of July, August, September and October.

"And whoever calls to mind the remarkable heat and drought of July and August, will have little hesitation in considering it as a remarkable season, and little difficulty in understanding how such a condition of atmosphere should be likely to convert into poison all the filth and putrefying matters which may be collected in and about an institution which, from the increased number of convicts, has become so populous and crowded.

"This view of the subject is also confirmed by the occurrence of two cases of the malignant disease, popularly called the yellow fever, in the month of August.

"The first case, that of Frederick Crater, commenced at Bridewell, on the 10th of August, with symptoms of bilious colic, which frequently precede the characteristic appear-

ances of yellow fever, and he died on the fourth day of his disease, with decided marks of malignancy, and, among the rest, with the appearances of black vomit.

"The second case to which we refer, was that of William Webb, who was seized with fever on the twelfth of August, the day before the admission of Crater, and who exhibited, during his illness, in the marked affection of his stomach, the discolouration of his skin, and in several other appearances, indubitable evidence of labouring under yellow fever.*

"It is true, that some hesitation and unwillingness were shown at the time to pronounce decisively on the first case. This arose from the early occurrence of the case, and an extreme disinclination to disturb the public tranquillity, by any suggestions of the existence of malignant fever. The events, however, which soon afterwards disclosed themselves in the city, left no room for doubt of the nature of these cases in the mind of any reasonable person.

"It deserves to be remarked, that the circumstances of the cases preclude all suspicion of their having infected one another, or of the disease having arisen from any foreign or contagious source.

"And it is interesting to observe, that the testimony in favour of the home-bred origin of our pestilential disease receives no small degree of confirmation from the occurrence

* "At the time Webb was sick, there were five or six others who were ill of typhus fever. These were all taken to the gallery of the chapel, in which situation they enjoyed an air so pure, that it could not be exceeded in many places of the island; and in order that all fear of infection or contagion from the case of Webb might be removed from the minds of the convicts, he was placed in a small wooden building erected for the purpose, at a distance as far as practicable from the prison; but within the walls. He was visited during his illness by many physicians; by most of whom his case was pronounced to be *yellow fever*, whilst the others seemed to hesitate with respect to the name which should be given to the disease. All, however, agreed that his case was so very dangerous, as to leave very little, if any, hopes of his recovery. But owing to the unceasing attention of his physicians, he at last got better.

"In adverting to the above circumstances, I should do injustice to my own feelings, as well as to the cause of truth, if I did not record, to the honour of the Board of Inspectors and medical gentlemen of the State Prison, that I was in no place, during the epidemic of the last or former years, where I found the sick treated with more tenderness, care, and humanity, than in this institution; to which I may likewise add, that as soon as they began to be in a state of convalescence, every necessary which it was supposed could be conducive to their recovery, was liberally allowed to them. *Ed.*"

of these cases in a situation so entirely inaccessible to imported contagion.

"After this instance of the appearance of so many cases of fever in the State Prison, during the course of one season, and the malignant and alarming aspect of some of them, it would be improper, on the present occasion, to omit recommending to the Board of Inspectors, an incessant attention to all the means of cleanliness and ventilation in the prison, and as much indulgence of the prisoners in the benefit of exercise and fresh air as the nature and objects of the institution will allow.

"All which is respectfully submitted by the Board of Physicians.

"RICHARD L. WALKER.
"NICHOLAS I. QUACKENBOS.

"New-York, Dec. 4, 1805.
"*The Inspectors of the State Prison.*"

ART. 4. *Traitè de la Fievre Jaune d'Amerique; Ouvrage dans lequel on recherche son Origine, ses Causes, tant sur Terre que sur les Vaisseaux, &c. &c.* i. e. *A Treatise on the Yellow Fever of America; a Work in which its Origin, its Causes, both on Shore and on Ship-board, and its Analogy to other Diseases, are inquired into; the Question whether it is contagious or not is examined practically and experimentally; the different Methods of Cure are pointed out, and Preservative Cautions given to Soldiers, Seamen, and others who go from Europe to the East and West-Indies, and the Coast of Africa. By* Lewis Valentin, *M. D. formerly Professor and first Physician of the Armies of St. Domingo, and Member of many Societies and Academies.* 8vo. pp. 247. *Paris.* Meguignon. 1803.

SPAIN has suffered such severe visitations of the yellow fever, that the governments and schools of Europe now turn their attention more closely than they appear ever to have done before, to that disease. While it raged on the coasts, islands, and interior districts of America, it excited but a secondary or distant share of regard; but now that the shores of the Mediterranean sea are visited by it, as they used to be long before the Christian era, the nations of that quarter of the globe are beholding it as a new evil which

approaches them with alarming strides, and threatens to disturb their healthy enjoyments at home.

Among other societies, the medical school of Paris interested itself in this investigation, and sent letters of inquiry to various persons, of whose skill, experience, and judgment they entertained a favourable opinion, soliciting information. One of these was addressed by M. Thouret, the President, to Dr. Valentin, and the book before us is the communication he made in reply, during 1801. It was read before that society, and was afterwards published in conformity to their wishes, among the papers they had collected. It has also been printed, for greater convenience, and more extensive circulation, in a separate form. The value of the contents will be the more appreciated by the reader, when he reflects that Dr. Valentin was long a resident at Cape François, that he held a distinguished place in the medical staff of the forces there, and after the burning of the capital town of St. Domingo, was for five years chief Physician of the French Hospital at Norfolk, in Virginia.

So prepared and qualified, he entered upon the present work. The materials of this are distributed under the following heads: 1. General remarks on the yellow fever as it has been observed in America, Europe, Africa, and Asia. 2. The origin and causes of the distemper, such as (a) a still and hot season; (b) the arrival of strangers and new comers; (c) other excitants than contagion; (d) low and marshy situations; (e) the extrication of septic effluvia; (f) the intense heats, numerous swamps, improper situations for cities, and the rotten bottoms on which they are built, the innumerable emigrations from the northern parts of Europe, and the accumulation of nuisances from organic matter undergoing corruption; (g) the imprudent conduct of sailors and newly-arrived persons; (h) local sources of disease from putrefaction and fermentation on ship-board; (i) a plethoric constitution of body, accompanied with a lax fibre; (j) the diminution or obstruction of the insensible perspiration; (k) the crowding too many men together in laziness and uncleanness; (l) and the operation of their septic and pestilential exhalations upon fresh and healthy persons. 3. Next follows a section on the symptoms which characterize yellow fever. 4. Observations made on dissecting the bodies of the deceased. 5. Treatment of those who are actually sick. And, 6. Dr. V. gives his opinion on the means of prevention. In his Preface he has passed some strictures

and criticisms upon Mr. *Gilbert's Medical History of the Army of St. Domingo* under le Clerc, in 1802; and in his Appendix he has inserted a French translation of Professor MITCHILL's *argument, at Albany in* 1797, *in favour of the antipestilential qualities of alkaline and oily substances.*

It is but justice to allow, that the author has detailed, in an able and convincing manner, the results of his extensive observations; and that he is well acquainted with the principal writings which have been published in America upon the disease of which he treats. His residence in the West-Indies, and his knowledge of the English tongue, give him great advantages. And still, with all this accumulated information, he is a decided and strenuous opposer of that new and mischievous medical heresy, whose supporters pretend that yellow fever is contagious.

We translate, as a specimen of this meritorious and instructive work, the author's account of the sickness on board the French fleet in 1794. After having cited examples of the mischief resulting from stowing or confining too many men together in a ship, he thus proceeds, (p. 146.) "In this manner the epidemic fever broke out in the squadron commanded by Vice-Admiral Vanstabel, which came into the Chesapeake in February, 1794, where a fleet from St. Domingo was waiting to be convoyed to France. After leaving Brest, the crews, given up to debauchery and insubordination, and having spent their advance of wages, were unable to purchase linen and other necessary clothing. The consequence was, that during the voyage they suffered extremely from personal nastiness. Some of them, after quitting the watch, returned to their hammocks, and went to sleep with all their wet shirts and jackets upon them.

"The distemper began in the ships *John Bart* and *Tiger*, on their arrival in Virginia; and, after having prevailed among the soldiers and sailors, it attacked the officers. Our hospital not being large enough, we were obliged to establish three others, and put in requisition the health-officers belonging both to the navy and the merchant vessels, to lend their aid on this occasion. About one half of them, and of the sick, died of this disease. I had myself nearly been one of the earliest victims; and I probably owe my escape to my lodging in Norfolk, and to my having suffered four months before a fit of the same disorder.

"The sickness in the fleet appeared under two different forms; for some of the men were in a state of extreme de-

bility; they voided blackish matter, and that often involuntarily; and sometimes they were delirious when I could scarcely find the trace of a fever. Certain of them, indeed, were so remote from a febrile state, that I could count but from forty to fifty arterial pulsations in a minute, so much were the vital powers oppressed and diminished. I have seen them expire on the first and second days after seizure. Many turned yellow, as happens to those who have the disease of the country, although the weather was cold, and this not the season for such fevers; but these cases were mostly without vomitings or considerable hemorrhages. Some had black, dry, and cracked tongues, others had peripneumonic symptoms and worms.

" The second class of the sick were those in whom there was increased irritability, and who experienced a furious delirium. They tore off their bandages and blisters, refused all kind of drink and remedies, and endeavoured to make their escape naked from the hospital. Some even got off in that condition, and were catched at the entrance of the woods. When nothing could allay this phrenzy, I seared the nape of the neck and the hind-head with a hot iron, and found great advantage from it. I did not lose a single officer whom I attended out of the hospital, (Capt. l'Hermite, of the Tiger, was one of them), and the disease was not communicated either to Norfolk or Portsmouth.

" I did not succeed in subduing this epidemic until I had obtained from the minister, Fauchet, and the Vice-consul in Virginia, all the succour they could lend. I enforced the greatest cleanliness, which had been neglected during the time that my attendance was interrupted by illness. The patients were carried out of the wards. I caused the floors to be scraped and carefully washed, the walls to be whitened with lime, and the furniture to be changed and fumigated. Through abundant precaution the clothes of the diseased were burned, and the garments of those who recovered were entirely changed or alkalized before they returned to their ships, on board of which also every possible arrangement was made for their health. I advised that they should carry to sea with them a good stock of fresh provisions and vegetables, with plenty of cider and beer. The epidemic did not wholly cease until April, when a squadron, and a very important fleet, might put to sea, and return to France. The state of indolence and want of employ endured by soldiers when confined on ship-board, is worse than that of sailors, who are

constantly kept in business. Hence, on long voyages, with head winds, and in wintry weather, or when the vessels arrive in a cold and stormy season, sickness is most commonly experienced. From these causes, how many French and English fleets have been wasted by distempers within the last century, and even very recently the squadron commanded by Admiral Gantheaume, in the Mediterranean, 1801?"

It would be an agreeable undertaking for us to make further extracts from this learned and able performance; but we are withheld from doing so by the hope we feel, that it is already extant in the fashionable languages of Europe, and read by the principal statesmen and physicians of that enlightened section of the earth. Where it has not been translated, we could wish that versions might soon be made; for we coincide in opinion with Mr. Thouret, the Director of the Parisian School of Medicine, in his letter to the author, *that his memoir on the yellow fever is worthy to be perused entire, and attended to with all the interest which the importance of the subject, and his very distinguished manner of treating it, equally demand.*

ART. 5. *Observations sur la Fievre Jaune, et sur les Maladies Tropiques, faites dans un Voyage aux Antilles, a l'Interieur de l'Amerique Septentrionale, &c. &c. Par* J. B. Le Blond, *Medecin Naturaliste, &c.* i. e. *Observations on the Yellow Fever, and on the Diseases of the Tropics, made during a Voyage to the Caribbee Islands, to the Interior of South-America, to Peru, &c. together with the Medical Topography and Elevation of those Countries above the Level of the Sea, whereby they possess three Temperatures, the cold, middle, and hot, remarkable for their Effect upon Electricity and Meteors, on the Animal and Vegetable Kingdoms, on Contagious Diseases, the Constitution and the Complexion of Man: To which is prefixed, a Report to the Institute, from the Class of Physical and Mathematical Sciences. By* J. B. Le Blond, *Medical Naturalist, &c. &c.* 8vo. pp. 290. *Paris.* Barrois. 1805.

MANY valuable facts are contained in the present volume. Several of them are derived from districts of America whence we seldom get information; and much of

the recital possesses the merit of being, in a good degree, novel in medicine, and, at the same time, highly interesting. The author has not written a book of quotations from those who preceded him. His materials are almost wholly his own. His pages are, therefore, eminently worthy of perusal. It was Mr. Le Blond's lot to reside long in the middle parts of America. He began his travels in 1767, and continued them through the West-Indian islands, and the provinces on the continent of South-America, until 1802. He thus passed thirty-five years of his life; and being a physician by profession, he employed himself during his residence at the different places he visited, in making practical remarks, and recording the more memorable occurrences.

Our readers will feel the more concern in examining our observations on this performance, if we descend a little deeper into particulars at the introduction to our review. We therefore inform them, that Mr. Le Blond, after he had visited several of the Antilles, penetrated far into the regions of South-America, by ascending the two great rivers Oronoko and Magdalena, toward their sources, and quite to the borders of Peru. And he more particularly traversed the extensive territories of Cayenne and French Guiana, where he actually resided for eighteen years. Having had frequent opportunities of witnessing the diseases of the places in which he dwelt, he observed them with a medical and professional eye. But in an especial manner he examined the origin, symptoms, treatment, terminations, and prevention of the yellow fever. To this object his inquiries have been chiefly devoted in writing his book, and he has consented to publish it at an early day, to gratify, in some degree, the curiosity and eagerness of the Europeans on that point.

The limits of this traveller's observations did not exceed the 15th degree of latitude north, and the 15th degree south of the equator, and the 35th and 63d degree of longitude, west of the meridian of Paris. The facts collected, and observations made within these boundaries, possess not only a local and intrinsic value, but they furnish the most instructive comparisons with the other zones and climates of the globe. He states, that having been employed and paid by the government, he has many more materials on hand, which he intends to print. The present Memoir is therefore but a part of what may be expected from his pen.

Having premised these introductory observations, we

proceed to examine more particularly the contents of the volume. Mr. L. commences, by displaying to his readers the medical topography of those portions of the earth through which he had travelled. Though situated under the direct rays of an equatorial sun, they are nevertheless, not uniformly hot and sultry, as the inhabitants of the north too generally believe. By an unhappy, though common mistake, the very name and idea of tropical latitudes and countries, is associated with excessive heats and dreadful diseases; but this is not necessarily the case: for between the tropics there exist, in America, regions as temperate as those of the middle latitudes, and cold as those of the polar circles.

The reason of this difference of temperature, and variety of climate in the low latitudes, is owing to the great extent and prodigious elevation of the mountains. Rising from the southern coast of the Caribbean sea, and westward from the sources of the rivers which run through the Spanish, Portuguese, and French colonies; the masses of rocks are piled upon each other tier above tier, and range beyond range, until they form the proud summits of the Cordillieras. This collection of mountains heaped upon mountains, is the greatest protuberance on the surface of our planet. Experience has proved, that the parts of the earth on which, *cæteris paribus*, heat is accumulated in greatest quantity, are those which are not much elevated above the surface of the ocean. In proportion as the atmosphere is ascended, either by climbing the sides of mountains, or floating upwards in balloons, it becomes cool, until at a height of about fifteen thousand feet under the line, and nearly ten thousand feet in the latitude of forty-five, there is found to be a region of everlasting frost. The orb we dwell on may, therefore, be considered as a warm body, surrounded at the distance of three miles, with an atmosphere in which snow rarely melts, and ice seldom thaws. In passing from the shore of the ocean, up the gradual slope of the country, to the peaks of the Andes, where hundreds of miles of shelving ascent are traversed to gain the three miles of perpendicular altitude, the traveller experiences all the vicissitudes of weather and varieties of productions between the tropics, which are otherwise to be met with in travelling towards the poles, at or near the oceanic level.

A person, fully possessed of the facts on this curious part of physical geography, will immediately discern, that the tropical latitudes furnish to him who will explore them, a

region of xtreme heat, a zone of moderate or middle temperature, and a higher district of cold, of frost, and of ice; and all these occur, in regular progression, not according to the remoteness, but the elevation of the regions respectively above the sea. Hence it can be understood, that the inhabitants of the highest and coldest zone of such a mountainous country, have constitutions similar to the natives of the high northern and southern latitudes; and that the people of the middle or moderate region, possess feelings and habits analogous to those of the temperate latitudes: while the men and animals of the low and torrid region have a temperament and character remarkably different from their fellow creatures who dwell within the temperate and gelid zones of the mountains, or the corresponding latitudes and climates towards the poles. Hence it follows, that a change of climate may be as effectually made by travelling up and down the mountains in these parts of South-America, as can be done by an inhabitant of most other parts of the world, by a long journey to the north or south.

Mr. L. therefore, distributes the countries he visited into three divisions; 1. the hot; 2. the temperate; and, 3. the cold regions.

The hot climate of the tropics he describes as being that which lies near the sea-coast, and in which the quicksilver rises in the day from 82 to 100°, or upwards, and during the night falls to 73 or 68°, according to local circumstances. In this are comprehended a comparatively small territory west of the Andes; but on their eastern side, almost all the vast and extensive regions watered by the rivers Amazons and Oronoko. It extends to a perpendicular elevation of from four hundred to six hundred metres, and includes all the country through which the Magdalena runs, from the borders of the province of Neyva to the sea. In French Guiana, the heat is so intense, that at the perpendicular elevation of four hundred metres, the mercury is seldom below 77°, and often as high as 89° on the mountains. This sultry region is distinguished by its peculiar plants and animals. Hail and hoar-frosts are never seen there. And it is impossible to excite the electric fire even by aid of the best machines. Clothing is rarely needed, and the natives go habitually naked.

The temperate region commences on passing upwards from the hot one. It is computed to begin about four hundred or six hundred metres perpendicular height above the

ocean. Its mean temperature is from the 54th to 65th, and even to the 77th degree in the day, and from the 43d to the 50th during the night. But it is never cold enough for water to freeze. It is separated from the hot region by craggy mountains very difficult of ascent, and by peaked ridges, which form a well-defined barrier between them. Electricity appears but in a scanty and feeble manner. The natives cover themselves with home-made cotton cloth. When an inhabitant of the hot region below ascends to this, he feels a delicious freshness in the air, which, however, soon compels him to put on warmer clothes; and, on the contrary, when a person from the cold region above descends hither, he is immerged, as it were, into an agreeable warm bath, and quickly covered with such profuse sweat as to oblige him to lay aside a part of his accustomed dress. It is bounded upwards by the cold region. This temperate zone, which enables the grape, the apricot, and the peach to grow beside the banana, the pine-apple, and the sugar-cane, is one of the most charming in nature. It includes the towns of Merida, Grita, Popayan, Mesa, Guaduas, and the greater part of the vallies of lower Peru; many of which impress the newly-arrived traveller with delicious scenes, and with sentiments resembling those we entertain of our first parents while they enjoyed the garden of Eden.

The cold region is represented as commencing where the temperate one ends, at about two thousand four hundred, or two thousand eight hundred metres perpendicular above the level of the ocean, and reaching to the snowy region above, where all vegetation dies. It is divided from the temperate region by long mountainous chains or naked rocks, with vertical fissures and sections, which frequently intercept all communication. It can be only reached by long circuits to passes or gaps in the rocks. Here the warm air of the lower tracts is condensed into clouds and rain. Electrical explosions are very common, and often violent; and thunder and hail are familiar meteors. Water boils readily, and evaporates easily, on account of the diminished pressure of the rare and elevated atmosphere. The mean heat of this region by day is from 50 to 54°. The nights are generally cold. White frosts are not unfrequent. The native Indians clothe themselves with woollen garments or furs. They keep fire in their cabins, and construct them partly under ground to ward off the cold. Within this cold and elevated tract are the vallies and plains in which are si-

tuated the towns of Pampeluna, Tonja, Santa Fé de Bagota, Pastos, Quito, and a great many more villages inhabited by the Spaniards. There also the plants are accommodated to their situations, for while the palms distinguish the hot region, and orchards thrive in the middle zone, the botanist discovers the species of Greenland and of the Alps on the bleak and inclement tops of the Andes.

Mr. L. next proceeds to describe the human species, whose individuals inhabit the regions he has visited; particularly as their constitutions are affected on migrating to the hot stations below, by malignant and yellow fevers. He considers the African negroes as the race of men best adapted to live and thrive in those low and vaporous situations. The inhabitants of Whidah or Mandingo, after having been naturalized to an atmosphere, often heated to 120° and upwards, feel relief on being removed to the relatively cooler settlements in America. Hence they enjoy their full vigour in the most hot and sweltering parts of the West-Indies, and of the neighbouring continent. Though little liable, even in the most marshy situations, to yellow fever, they, however, have their sufferings; for, besides smaller disorders, the stomach-evil, the home-sickness, the yaws, and occasionally inflammatory diseases, catarrhs, dysenteries, and small-pox, assail them. 2. The native Indians of South-America are enabled, by their physical temperament, to resist the septic diathesis of the swamps and the invasion of yellow fever, in a more remarkable degree than any people except the imported blacks. They are scarcely more susceptible of the malign influence of the maritime regions than the negroes. But though they escape yellow fevers, they experience the tormenting effects of phlogistic diseases, fluxes, small-pox, and some other maladies. 3. The mulattoes, and other people of colour in the hot regions, visited by the author, possess the constitutional powers of withstanding the noxious operation of the climate in the next or third degree. Though it is observed, that the nearer the mixture of the breed approaches to pure white, the more puny and debilitated they become, and the more they depart from the native vigour of the Negro and the Indian. 4. Next in order come the white Creoles of the sultry region. The author remarks, that the race of people descended from white fathers and mothers, though considerably sprightly and active, is still sensibly inferior to the strength and firmness of the white race in cold countries. This is so remarkable,

that in all French Guiana, there is not an instance of the Creole offspring of white fathers and mothers, perpetuated to the fourth generation; but the issue is saved by being sent to Europe, or to Quito, Santa Fè, and other places in the cold region; and on returning to their native places, these persons are found to resist the attacks of yellow fever better than the whites who are born in cold countries. 5. The author considers native American whites of the cold region, and Europeans, as acclimated to the hot region. The process is described by which the whites of the temperate latitudes of the earth, and of the moderate zones of the tropics, become naturalized. On exposure to the new atmosphere, a fever is generally kindled up, and, after various morbid affections of the exterior surface, the skin loses its fresh colour, and acquires a sort of adventitious paleness. These are the constitutions which are peculiarly predisposed to putrid or yellow fevers. In the new-comer, the liability to these fevers is increased by a scorbutic habit; and the yellow fever is but the maximum of a putrid diathesis, induced by the hot and noxious atmosphere, upon a body heretofore accustomed to a pure and cold one. 6. and lastly, The case of whites from cold countries, recently arrived in the hot region of the tropics, is stated. He relates the astonishing fertility of certain maritime and marshy plains, which, though terribly destructive of life, especially among the emigrants from cold countries, are still cultivated at every hazard and loss. In some of the worst of these unhealthy spots, it has been found convenient to establish the marts of commerce. In these, colonial adventurers, speculating emigrants, and the soldiers and sailors employed, as well in private enterprizes as public expeditions, are carried off prematurely and unrelentingly by the yellow fever. The English, Anglo-Americans, and Dutch, are observed to be the most violently invaded; the French next; the Spaniards, Portuguese and Italians suffer less than either of the former.

After these, Mr. L. proceeds, in his third chapter (p. 120), to describe that formidable disease, to give directions for a prophylactic course, to order what ought to be done in a recent attack, and to advise how the advanced disease ought to be treated. In his remarks on the *putrid bilious fever* of the low and hot region, he writes (p. 124), " that it differs from the yellow fever only by being less alarming in its progress, by its longer duration, by its being rarely accompanied by yellowness, hemorrhage, or black-vomiting, and by

its being not so killing; or, *to speak more correctly, the natives of the hot region can better resist it than the new-comers from the cold countries; for in these it would be a true yellow fever.*" The treatment of both is nearly the same.

The next topic which the author discusses, is the medical topography of the Caribbee Islands and the neighbouring lands. These he divides into two classes. In the former of them are Martinique, Trinidad, the town of Angostura in Spanish Guiana, the town of Honda the great inland commercial place of deposit on the river Magdalena, the towns of Neyva, Paita, Riera, and some others; in which, by reason of their dry and ventilated situation, the bilious putrid fever and the yellow fever are not endemic. In the latter class he names St. Lucia, St. Vincent, Grenada, the town of Carthagena the maritime depot of commerce for the river Magdalena, the valley of Patia, the province and town of Guayaquil, Lima the capital of Peru, Cayenne, and French Guiana, places in which putrid fevers are endemic among the native inhabitants, and yellow fevers endemic among new-comers from cold countries who have not yet been seasoned to the hot climate.

On the origin of yellow fever Dr. L. relates several instructive facts. It is engendered in the road where vessels ride at St. Pierre's, in Martinique, among the crews of their newly-arrived ships, rather than in the town. When the sick are carried to the hospital on shore, they never communicate infection to the inhabitants, but only to the new-comers from cold countries (p. 134). At Angostura he saw a most malignant distemper arise from the corrupt quality of the bread which the men were obliged to feed upon (p. 144.) At St. Thomas, on the right bank of the Oronoko, there is great unhealthiness during the summer. Putrid bilious fevers afflict the inhabitants. And the author says "he has no doubt, if an European regiment should arrive there in the summer, that the yellow fever would break out, and destroy the greater part of them" (p. 145). At St. Lucia, in 1767, there was as destructive a yellow fever as ever was known, on board the American vessels anchored in the road, while the inhabitants on shore were exempt from it. In one vessel not a soul survived: and new-comers fell sick with alarming rapidity (p. 156). At St. Vincents he was repeatedly told by the Creoles, that they never heard of the yellow fever until after the arrival of the English. During the grand and sudden establishment made by this nation at Tyr-

rel's-bay, there was a great crowd of Negro passengers, and every thing necessary to clear the land, and erect buildings with dispatch. Among them were about thirty Scotchmen newly landed. Among these the yellow fever broke out, and killed a considerable part of them. The sailors and fresh passengers from the north suffered it also, and several of them perished (p. 159.) At Grenada, as long ago as 1770, the Carenage was a sickly place. The yellow fever was frequent, and particularly fatal to strangers. Its malignity was shocking, in consequence of the unhealthy exhalations from the marsh near the port and town of St. George's. Dr. L. practised there two years. There were then local causes enough for disease, and the importation from Boullam had not been thought of. (p. 165.)

The author attended the Viceroy of the kingdom of New-Grenada, from Santa Fè, the seat of government, to the seaport of Carthagena; the former is situated in a cold country, and the latter in a hot one. About half the guard, amounting to fifty men, all natives of the cold region, fell sick with bilious colics, cholera morbus, black stools, dark vomitings, and other alarming symptoms. Fœtor accompanied the evacuations, and putrefaction supervened immediately after death (p. 177). The physicians told him that black vomit never attacked any but strangers and Spaniards, some time after their arrival. (p. 179.)

But the valley of Patia affords as fair an example of the local origin of yellow fever as can be found in history (p. 179). It is situated on the road to Quito, and is about three days journey from Popayan. It was formerly famous for its gold mines, and is about fifty myriametres from the nearest sea-coast. Owing to the peculiar configuration of the low lands, the waters and the mountains, it is reckoned so unhealthy, that the Spaniards dare not settle there. The only inhabitants are Negroes, who have lost their sooty blackness, and turned to a reddish or copper colour. It is related as a fact, that the inhabitants of the Upper Andes, in passing this valley, which is a journey of two or three days, have been seized with fever, and if they continued there, with a yellow fever, which carried them off in a few days. Two of Dr. L.'s companions, natives of the high Cordillieras, were taken sick as they passed this doleful valley, and, as he supposes, escaped yellow fever by getting out of it. There are a great many other unhealthy vallies of this same kind in the internal parts of South-America, and some of them are

too sickly for the resort and abode of men, although they abound in gold. Such are the famous mines of Matagrosso and Tipoanam, which are too sickly for flesh and blood to bear. Goitre, yaws, and other distempers invade some of the inhabitants of the vallies, where yellow fever does not make its appearance. It is common for the inhabitants of Guayaquil to send off their children to Quito, or elsewhere, when very young, for the purpose of being educated, and of gaining healthy complexions; but the rosy and liliaceous hues of their faces soon disappear on their return to their native places. Within a year, or thereabout, they acquire the pale and tawny colour of their parents. This happens sooner if they are seized by a fever; which often assumes the form of black-vomit, and proves fatal to them. The people of colour, and particularly the blacks, enjoy here uninterrupted health. (p. 186.)

Sailors arriving from the cold southern province of Chili, in coasting vessels, loaded with wheat, fell dangerously sick of the yellow fever at Callao. Their wheat had been shipped for the market of Lima, and had got into fermentation in consequence of having been wetted on its passage. Among the symptoms were convulsions, bleedings, and black vomitings, (p. 200). The predisposition of the Chilians, from the cold regions of the south, to fall into yellow fever, when exposed to burning sunshine and hard labour in the equatorial latitudes, is related in an interesting manner in p. 204.

At Cayenne likewise, new-comers from cold countries contract yellow fever, not by catching contagion from any sick person, but from the heat, gaseous impregnation, and other qualities of the atmosphere. These, while they inspire the natives with health and vigour, exert a deadly malignity upon strangers (p. 212). This is so great, that they often die on the first or second day of the attack. They rarely survive the third, and more rarely still the fifth. If they outlive the sixth or seventh day, the disease assumes the type of the bilious putrid endemic fevers of the country.

The unhealthiness of French Guiana, to men from the colder climates, is evinced by the unfortunate expedition under General Degouges, in 1802. This officer arrived at Cayenne, with a body of three hundred men, in the midst of the greatest heats. The atmosphere had become loaded with septic exhalations from the drying and rotten marshes. In about a month the yellow fever appeared among the soldiers, and in a short time cut off two hundred of them,

together with their General, the Commandant of the place, and several other officers. And although these men were quartered in the same barracks with the old battalion and the regiment of blacks, not a single one received any contagious impression. Only a few hard drinkers among these old standers had putrid bilious remittents, which, however, differed from yellow fever only by their longer duration and milder symptoms. But the yellow fever, though it favoured those who had previously been seasoned, was as fatal to the newly-arrived passengers and sailors as it was to the soldiers. And while the fresh emigrants were woefully afflicted, the people of the country experienced only the fevers and ordinary disorders attendant on the calms which succeed the intense heats of summer. (p. 226.)

Mr. L. repeatedly states the radical difference which exists between the constitution of the African and the white-man. And in p. 235 he declares that the humidity and effluvia of the marshes have no more effect upon a Negro than cold has upon a Laplander. Even the acclimated whites sink under their noxious influence, into double tertian, bilious, or even putrid fevers. But it is a matter of common observation, that a stranger from a cold latitude, under the same exposure, is immediately invaded by yellow fever, and often destroyed by it. The author's opinion is, that if one of these fevers of the hot region kills on the first, second, or third day, it is a yellow fever; but if the patient survives the fifth, it is to be considered merely as a common putrid fever. The yellowness, hemorrhages, petechial eruptions, black stools, &c. are rather signs of dissolution than of a favourable crisis.

The author's treatment of the disease is moderate, and, if circumstances require it, repeated bleeding; the exhibition of emetic, purgative and emollient clysters; of sudorifics; of nauseating doses of tartar emetic, and, lastly, and above all things, the Peruvian bark sometimes alone, and sometimes joined to laudanum, or elixir of vitriol. After black vomitings and stools have appeared, he ceases to evacuate any more, but endeavours to invigorate. Good wine, sweetened and spiced with canella, sinapisms, searing the occiput with a hot iron, and sternutatories are recommended in this stage of the disease. He entertains doubts about blisters, because they are too slow for such hurrying sickness, and besides are very apt to mortify. But the quinquina is again recommended as preferable to all other remedies. He gave it in

substance, in decoction, mingled with jalap and other purgatives, with aromatics, with opiates, with acids, in a plaster to the whole exterior surface, and, indeed, in all possible forms. He thinks the bark acts by neutralizing the febrile poison in the stomach, &c.

Mr. L. in several parts of his work, mentions contagion; but he does it like a man who had learned the term at the university, and believed it to be proper and fashionable to employ it. His book is replete with new and cogent facts; facts militating against that delusive doctrine, as it respects yellow fever; and was he associated with persons who dared to reject that mischievous prejudice of the schools, there can be no doubt he would lend his aid to combat and explode it.

MEDICAL & PHILOSOPHICAL NEWS.

DOMESTIC.

The great Eclipse of the Sun, June 16, 1806.

ON the 16th June, 1806, happened a remarkable eclipse of the sun. A beautiful and correct projection of it for the city of New-York, had been made in 1803, by Mr. William Lambert, of Virginia, and presented to Dr. Mitchill. The obscuration at the city began nearly at the time predicted, and it was computed that nearly 11⅔ digits were rendered invisible by the moon. A sad and dismal gloom overspread the face of nature. The portion of the sun's limb which remained in sight, resembled a crescent. The twilight was such in the penumbra at New-York, that the planet Venus appeared, and was seen by many. The shadows of trees and other objects were remarkably faint and undefined; and the rays of light which passed between the leaves, all assumed a semi-lunar or crescent-shaped figure on the ground or other object upon which they fell. The failure of light imparted to every thing an aspect of peculiar dulness and darkness, different from the crepuscle of morning or evening, or from the interposition of clouds, as the sun

" ——————————————from behind the moon,
" In dim eclipse, disastrous twilight sheds
" On half the nations, and, with fear of change,
" Perplexes monarchs"——

The eclipse was calculated to be total in such parts of New-York, New-England, Pennsylvania, and Ohio, as were situated between 41° 35′ and 43° 5′ of north latitude; and, at the time of true orbit conjunction, the sun and moon's place were in Gemini 24° 44′ 52″.

Fortunately on the morning of that day the atmosphere was very clear. Simeon De Witt, Esq. the Surveyor-General of the State of New-York, embraced the opportunity to make observations at Fort Orange, in Albany. He had ascertained the latitude of that place by a series of observations on the zenith distances of the principal stars in *Lyra* and *Capella*, taken from Maskelyne's tables, and corrected

by the equations of their annual variations, aberration, and nutation. The instrument used was a sector of thirty inches radius, made expressly for him by Dr. D. Rittenhouse, and furnished with an excellent achromatic telescope. The equal altitudes were taken with a brass Godfrey's sextant, of the best of Ramsden's make, furnished also with a telescope; and the clock used was one of the best of Mr. Don's, of Albany. The latitude of the place of observation is 42° 38′ 39″ north, and the longitude 73° 47′ west of Greenwich.

According to Mr. De Witt, the eclipse began at 9 h. 50′ 12″ A. M. The beginning of the total obscurvation was 11 h. 8′ 6″. The end of the total darkness was 11 h. 12′ 57″. End of the eclipse was 12 h. 33′ 8″. Duration of the total eclipse 4′ 51″, and the half duration 2′ 25″.5. Passage of the centre 11 h. 40′ 35″.5. Duration of the penumbra's passage 2 h. 42′ 56″. We insert this gentleman's concluding remarks in his own words:

"The atmosphere was uncommonly serene during the eclipse, and afforded the finest opportunity for observations, while it permitted the most perfect display of a spectacle inexpressibly beautiful and grand. I was so fortunate as to observe the eclipse very near the moment of its commencement, and took the end of it as nearly as I could judge, when the same almost insensible impression was left on the sun's disk. I used the telescope of my sector; its magnifying power in superficies is about 900. The beginning of total obscurity was noted at the instant the last direct ray of the sun disappeared, and may be relied on as correct; but its continuance being nearly three minutes longer than was given by the Almanacks, and I having, from a fear of displacing the telescope, and of not having time to re-adjust it, omitted to remove the dark glass, the sun had left the field of the telescope before his re-appearance; I was therefore obliged to note it with the naked eye. I believe, however, that very little, if any error is to be apprehended from this cause; but I regret the circumstance chiefly on another account; I lost by it the opportunity of viewing the phenomenon with the assistance of glasses in its most interesting state. Several persons have since told me, that during the total obscurity, a luminous spot was observed some distance from the southwesterly edge of the moon. This singular appearance, if there is no mistake in it, has no doubt on this occasion, received such notice from others as to ascertain its reality. A similar appearance has been mentioned in the

case of a total eclipse before this, and given rise to a conjecture that it was produced either by a vulcano, or a perforation through the moon, so as to admit a passage for the rays of the sun.

"It may be of use to know precisely the distance to which the moon's shadow extended. It is therefore hoped, that persons who were to the north and south of this, where the least part of the sun's northerly or southerly edge was visible, or who can ascertain the line between those places in which the sun was partially and totally eclipsed, will not withhold their information. Care should, however, be taken not to mistake the light which proceeded from the illuminated edge of the moon for the direct rays of the sun."

At Cooperstown, near the outlet of Lake Otsego, in New-York, the following description of this sublime phenomenon was given:

"The atmosphere, at this place, on Monday last, was serene and pure. The sun was majestically bright until fifty minutes past nine o'clock A. M. when a little dark spot was visible about forty-five degrees to the right of its zenith. The shade increased until fifteen minutes past ten, when stars began to appear, and the atmosphere exhibited a gloomy shade. At twelve minutes past eleven o'clock the sun was wholly obscured, exhibiting the appearance of a black globe, or screen, with a light behind it, the rays only of which were visible, and which were too feeble to occasion sufficient light to form a shade. Many stars now appeared, although less numerous than are usually seen in clear evenings. There was now "darkness visible," a sort of blackish, unnatural twilight. The fowls retired to their roosts, and the "doves to their windows." The birds were mute, except the whip-poor-will, whose notes partially cheered the gloom; the dew "descended," and nature seemed clad in a sad, sober, and something like a sable livery. At fourteen minutes past eleven a little bright point appeared to the left of the sun's nadir, similar to the focus of a glass when refracting the rays of the sun. Suddenly a segment of the circle of that glorious orb emerged, and seemed to say, "sit lux," and was instantaneously obeyed; "lux fuit;" as quick as thought a small pin could be discovered upon the ground. A more wonderful and pleasing phenomenon can hardly be conceived. The doves left their retirement, the whip-poor-will's melody ceased, and the face of nature again smiled; but some stars were still visible, and Venus displayed her beauty until

twelve o'clock. At forty minutes past twelve, the sun shone in full splendour, and, in its turn, eclipsed the moon, and all the other heavenly luminaries by its glorious effulgence."

On this occasion, our profound biblical and oriental scholar, John C. Kunze, D. D. and P. published in New-York, a pamphlet, entitled, "*A Table of a new Construction for calculating the great Eclipse expected to happen on June* 16, 1806;" and dedicated it to the Philosophical Society of Philadelphia. The curious in chronology and astronomy will doubtless feel a desire to examine these laborious calculations; and the more so, as the author differs from Usher eleven years, in computing the year of the world in which the Christian æra begins, Usher making it 4004, and Kunze 4015.

It was a fact of general notoriety, that as the solar rays were intercepted, the atmosphere became sensibly cooler. With the interception of the sun's light, there was a corresponding abatement of heat on the earth, indicated in New-York city by a fall of the quicksilver eighteen degrees.

The times of the beginning, duration, and termination of this conjunction were astronomically noted, with the aid of proper instruments, by two eminent astronomers, Messrs. Ferrer and Garnett. They were stationed at Kinderhook landing, where the eclipse was both total and central.

Observations upon the Spots which were visible on the Body of the Sun, in March, 1806. *By the Rev. David Wiley, of George-Town, (District of Columbia), in a Communication to Dr. Mitchill, dated March* 4, 1806.

The sun exhibited a very unusual appearance this afternoon. It was but ten or fifteen degrees above the horizon when my attention was called to it. Two spots were very plainly visible to the naked eye. One of them appeared to be nearly half a digit in diameter; the other considerably less. They were situated a little to the north and east of the sun's centre. Upon applying a telescope to the sun, which was done immediately, two other smaller spots appeared in the western or lower limb of the sun, and the two which had been manifest without the telescope, were seen surrounded with a multitude of smaller spots of various magnitudes.

Some astronomers have supposed that the spots of the sun were bodies of irregular figure, revolving round and near to the sun; others, that they were clouds in his atmos-

phere or mountains on his surface. Dr. Herschell conceives the luminous part of the sun to be a kind of atmosphere, and the dark spots to be the opaque ground, or body of the sun, seen through this atmosphere intercepted or broken. In this hypothesis he differs but little from Dr. Wilson and others, who think that the spots are excavations in the luminous matter of the sun. An opinion much confirmed, I conceive, by the phenomenon of this evening. The two largest spots (the two which were visible to the naked eye) were connected together by what appeared to be a broad, indented, irregular, zigzag fissure in the luminous matter or surface of the sun. In fact, the large spots appeared to be only broader and better defined parts of that fissure. The largest of the two spots first visible was at the lower or western end of the fissure, and nearest to the centre of the sun. The other was about a digit further up towards the eastern limb, and the fissure continued nearly a digit further towards this limb, though bended, as it were, somewhat to the south. The first appearance of the phenomenon forcibly impressed the idea of a vast volcanic eruption in the sun, by which a fissure was made in its surface, to the length of nearly one sixth of its diameter. In such an excavation or disruption we might expect to see the opaque, uninflamed matter of the sun; that it would be irregular in breadth and direction; and that vast bodies of the opaque matter of the sun would be thrown upon each side of it, and exhibit a multitude of dark spots throughout its whole course. This appears to be the fact, and it is particularly remarkable, that the dark spots on each side of the fissure are largest and most numerous where the fissure is broadest, and where we might suppose that the greatest quantity of opaque matter would be thrown up.

Thursday morning, March 5, 1806. Shortly after the sun rose, it shone bright. The spots observed the preceding evening could still be seen by merely screening the eye with coloured glass, or looking through a small hole in a piece of paper. Viewed through the telescope, they had much the same appearance as when first observed. The principal points of difference appeared to be,

1st. The continuity or connection of the parts of what has been called a fissure, was somewhat interrupted. It rather exhibited the appearance of a series of spots of various figures and dimensions.

2d. Most of the small dark spots which had been seen at

the first observation on each side of the apparent fissure had disappeared, or rather had given place to spots of a colour paler than the rest of the sun's disk, of a larger size, and not so distinct from each other.

3d. The largest spot, at the end of the fissure nearest to the sun's centre, was not so well defined on one of its sides; but the extent of the fissure or series of spots, as it now appeared, was still the same. It still appeared nearly equal to a sixth of the sun's diameter; it still had the same zigzag direction. The two largest spots, which were at first seen by the naked eye, and could now be seen through coloured glass, were still in their first position; and the two small spots which, on the evening of the fourth, were observed near to the western limb of the sun, were still to appearance in the same place. It was also remarked, that two of the detached dark spots were still disinctly visible, near to the end of the fissure most distant from the sun's centre, somewhat advanced from the end, and one on each side of its direction. The sinking of the sun in the dense vapours of the horizon had terminated the first observation; the intervention of clouds precluded the second from continuing as long as was desired.

Saturday morning, *March* 8, 1806. The fissure appeared to be considerably more broken into distinct spots, of a smaller size, and fewer in number; but its direction, bendings, and whole length were still plainly marked. The two largest spots were still manifestly so, though considerably diminished from their former size. The two spots last mentioned in the account of the last observations were still visible.

Wednesday, *March* 12*th*. No spot could be seen on any part of the sun's disk. The revolution of the sun on its axis had brought a different part of his surface to view; and it appears from the preceding observations, that the dark spots were gradually diminishing. The state of the weather prevented more frequent observations. At the second observation, the phenomenon was seen through the telescope by several persons.

On reviewing the whole, nothing appears to weaken the first impressions, that the phenomenon was the effect of a vast volcanic eruption. The admission of this, as a fact, may involve many important consequences when deeply considered, calculated to fill the mind with astonishment and awe; but consequences to which many other celestial phe-

nomena evidently point, and which the very nature and constitution of this material world lead us to expect. The universe is subject to dissolution; the solar system verges to final ruin;

" The sun himself is growing dim with age,
" And nature sinks in years."

When the human mind would look forward to the full completion of the vast event, when it would take an extended view of the mighty ruin, it is overwhelmed in the awful grandeur of the scene; it shudders at the idea of its possibility, and, losing sight of the evidence on which the conclusion rests, it wanders in search of expedients to avert the great catastrophe. Comets, electricity, &c. have been supposed to supply the waste of solar substance. But, imperfect as all such theories are, their utmost effect could be only to protract the final inevitable issue. Even this may be conceived to be both desirable and necessary. For it may be alleged, that if some such restoring cause did not operate, the diminution of the great luminary of day would have long before now become visible to observation.

The consequence, however, does not necessarily follow. For, let it be considered, that the diameter of the sun is 800000 miles, or 4204000000 feet; the mean apparent diameter is about 32 minutes of a degree, or less than 2000 seconds. Few instruments will measure angles to a second, or a 2000th part of the sun's apparent diameter. The sun, therefore, may be diminished by a $\frac{1}{2000}$ part of its diameter, or by 2102000 feet, without its being perceived. A quantity which will afford two feet for daily diminution in diameter, for nearly 3000 years.

Besides, all the planets in our system may be gradually approximating to the sun. His apparent diameter may, therefore, increase, while, at the same time, his real diameter may be diminished.

Thus it appears, that there is nothing extravagant or absurd in the hypothesis, that the matter of the sun is in a state of continual consumption; and it has this additional recommendation, that it offers to the mind one of the most sublime objects of contemplation. The peals of ten thousand thunders; the shocks of ten thousand earthquakes; the noise, confusion, and dismay of the bloody fields of Marengo and Austerlitz, all united, would be calculated to excite but a slight emotion in the breast of the spectator, when compared with

" The wreck of matter, and the crush of worlds."

State of the New-York Hospital for 1805.

The number of patients admitted in 1805, was 1313. Of these, 730 have been cured, 55 relieved, 215 discharged as disorderly or by request, 150 have died, and 163 remain in the house. During the year the expenses amounted to $ 23,303, which were defrayed out of the monies granted by the Legislature, by private donations, and sums paid by sick persons received as boarders. Of the diseases, 36 were consumptions, 30 dropsies, 70 frost-bitten, 58 lunacy, 162 rheumatism, 27 claps, and 193 pox. Of the patients, 601 were Americans, 352 were British, that is to say, 4 Welsh, 28 Scotch, 81 English, and 239 Irish, 20 French, 39 Germans, 9 Italians, 8 Portuguese, 8 Spaniards, 9 Swedes, 6 Hamburghers, 6 Hollanders, 9 Danes, &c. &c. Convinced of the great utility and excellent management of this Hospital, the Legislature, at the last sessions, endowed it with an annuity of $ 12,500, for fifty years. With this sum, it is intended to make many additions and improvements, and especially to erect a distinct and commodious building for the reception of maniacs.

Shecut's Flora Caroliniensis.

A botanical publication has been commenced, in numbers, at Charleston (South-Carolina), which appears to be supported by a liberal subscription. It it entitled, *Flora Carolinæensis, or a historical, medical, and economical display of the vegetable kingdom, according to the Linnæan or Sexual system of Botany.* The author is John L. E. W. Shecut. He promises to make, for his readers, a compilation of facts and discoveries in botany, up to the present time. It is to be hoped he will embrace, in this collection of materials from the vegetable department of Natural History, all the species and varieties of plants in South-Carolina, left unnoticed by his botanical predecessors. We understand the fifth number is in the press. The four, already published, make three hundred and thirty-six pages.

Uneasiness in Spain on Account of pretended Remedies for the Yellow-Fever, manufactured in England and exported thither for Sale.

In July 1805, the Marquis Solano, Spanish Governor at St. Lucar, received an order from the Prince of Peace, directing him to prohibit, by all the means in his power, the sale and consumption of the medicines against yellow fever,

prepared by an English physician, named Willich. Three thousand boxes of these remedies had been introduced into Spain, and sold for four dollars each, which did not cost fifty cents in England. By this commercial speculation, his Excellency fears that several millions of rials will be filched from the subjects of his Catholic Majesty, and many of the subjects themselves tricked out of their lives.

The Prince of Peace further informs the Governor, that the boxes contain bottles of a liquid, and powders wrapped up in papers. The liquid, he says, is of a vinous colour, which it loses on standing open; and on being analized by order of government, was found to consist of water, distilled with some aromatic substance, chemically incorporated with it. The papers in each were four in number, each of which was found by the public examinators to contain twenty-six grains of bad Peruvian bark, and two of them about a grain of tartar emetic.

This ministerial order has been extensively circulated in Spain, by the Governors of the different provinces to whom it has been sent; and one of the compliments passed in this proclamation upon the ingenious inventor, is in the following words: " A Mas de esto hay dos tapones de corcho, y dos impresos en espagnol y Frances, en que el Dr. Willich, inventor de este engano, usa de la posible charlatanerià para vender su remedio."—There are so many things of a similar manufacture, which, under the title of patent medicines, are exported from the same manufactories into the American States, that it would be a highly salutary measure to reject or to suppress them in our own country. Mr. Golding's tin-boxes, containing each a bottle of liquid for the prevention and cure of yellow fever, are not yet forgotten in this country, to which large consignments have been sent for sale.

Valverde's Description of the Island of Hayti.

We recall to the attention of our readers, a work published at Philadelphia in 1796, entitled, " A Topographical and Political Description of the Spanish Part of St. Domingo." The writer was the well-known *M. Moreau de St. Mery*, who seems to have had his French manuscript translated and published immediately in English. This may be considered the most respectable work that we have on the subject; and it is worthy of the higher credit, on account of the free use which the writer has made of VALVERDE's work

on the value of that Spanish colony, and the profit which the mother country might derive from it, printed at Madrid in 1785. Valverde was a Creole, and prebend of the Cathedral of St. Domingo city; and his publication may be considered the ground-work of that with which M. St. Mery has favoured our country.

It was discovered by Columbus, December 6, 1492, and was called by the natives, *Hayti*, which signifies *high*, or *mountainous* land. The European discoverer named it *Hispaniola*, or *Little Spain*. By the French, and other nations, it has been generally termed *St. Domingo*, from a city of that name, the *capital of the Spanish part*, so denominated by Columbus, in honour of his father.

This is the oldest colony in the new world. From this originated the swarms which successively established themselves in St. Marguerite, St. Martha, Mexico, Peru, Yucatan, Florida, and Carthagena.

The principal researches of the Spaniards after the discovery, were for gold and silver. Of the former, they, for a considerable time, found large quantities, and of the latter, no inconsiderable amount. In quest of these, they imposed such hard tasks upon the natives, that their race rapidly became extinct. When the metals grew scarce, and there were fewer hands to seek and work them, great numbers of the most wealthy inhabitants abandoned the island. Although the soil and climate are eminently adapted to the cultivation of the richest productions of the earth, the rage for obtaining gold directly from the mines, and not through the circuitous round of agriculture, absorbed all other considerations, and caused a remarkable desertion and depreciation of land and its improvements. And this backward, or rather prostrate state of property continues to this day over three-fifths of the island.

In this state of society among the Spanish colonists, a body of adventurers from almost all the other maritime nations of Europe began, at length, to make a figure. The French were numerous and conspicuous among them; and wherever they settled, were persecuted and driven off by the Spanish forces. A body of them had been expelled from St. Christophers, in 1630. Adventurers from almost all the nations of Europe had been treated with similar harshness; and, fleeing from their common tormentors, this medley of individuals fixed themselves on the small island of *Tortue*, or *Tortuga*, as an asylum in their distress. There they

erected little huts, called *Boucans*, which means *places to cook meat.* Hence they were called *Boucaniers*, or *Buccaneers.* By degrees they extended their possessions to the *Great Island*, as they then called St. Domingo, in contradistinction to Tortuga, the *small* one.

In this place the Buccaneers fought and defended themselves. After various turns of fortune, they established themselves in Tortuga, in spite of the Spanish power. Gradually they spread along the coast of St. Domingo, and in 1670, settled on the plain of Cape-François. By degrees, they and their successors, among whom the French predominated, obtained possession quite across to Jacmel, in the south, and to Capes Nichola Mole and Tiburon, in the west. After incessant encroachments, distinguished frequently by captivity, blood-shed, and murder, a contention which had convulsed the island for almost a century, was finally settled by a treaty of limits in June, 1777, between Spain and France. By this act Spain ceded away about two-fifths of St. Domingo. The other three-fifths have been conveyed to France by a subsequent deed.

The account of the island is methodically arranged. Its mountains, plains, climate, temperature, rivers, gales, hurricanes, animals, minerals, and vegetables, are each treated of in succession. Then follows the division of the island into five kingdoms, as it existed under the native Caciques. After this the author treats of the extent of the Spanish part, and of the character and manners of the Spanish Creoles. Then he enters upon what may be strictly called the topographical description of Hayti, and beginning in the south-west, at the mountains of Bahoruco, he delineates the districts of Neybe, Azua, Bani, St. Domingo city, St. Laurent des Mines, Seybo and Higuey, to Cape Enganno, in the south-eastern extremity of the island; thence along the eastern end, to the bay of Samana, and along to the baye Ecossoise on the north side; and thence to the north of the long chain of Monte-Christ, to the baye de Mancenille, where the river Massacre enters the sea, and forms the old line of territory on the north-west, not many leagues from Cape-François. The descriptions of the interior settlements of Cotuy, Lavega, St. Jago, Daxabon, St. Raphael, Hinche, Banique, and Maguana, are very circumstantial, and have the air of being done by a man who had seen for himself, and knew, from observation, what he was writing. The advantages of the bay and peninsula of Samana, for the construc-

tion and rendezvous of ships, are instructively pourtrayed, as are the two-fold advantages afforded there of inexhaustible supplies of timber and naval stores from the river Yuna, which runs into the Bay, and from the easy communication with the ocean. A well-finished and instructive map of the island accompanies the work, drawn by Sonis, and engraved by Vallance. And, on examining the whole, it may be justly said, that the first volume contains a remarkably fine piece of physical geography, worthy of perusal by all who wish to be well acquainted with Hayti, and who desire to know how books of this kind ought to be written. Lapis lazuli, emeralds, diamonds, iron, and copper, are also among the productions of this island.

The height of the highest mountains, such as those of *Ciboa*, *Selle*, and *Hotte*, is reckoned to be a thousand toises, or six thousand French feet. But a greater part of the chains and ridges of the interior are not more than half that elevation. In the territory of Neybe, in the south, there is a small mountain of salt, much prized for domestic purposes. Its natural re-production is so rapid, that a large cavity is actually filled up in the course of a year. The more modern houses in the city of St. Domingo are built in *Pisè*, by ramming down a reddish clay, within a case made of planks. The operation of ramming being continued, as the clay is thrown in, forms a solid sort of wall, which acquires amazing hardness, and frequently renders pillars of masonry useless. This city, which stands near the mouth of the river Ozama, is the principal see of an Archbishoprick, and contained in 1796, not more than twenty-five thousand inhabitants; and almost the whole Spanish part of the island, though admirably adapted to the cultivation of sugar, coffee, cocoa, cotton, indigo, tobacco, and ginger, is miserably neglected, and kept in the state of forest, to raise wild cattle and hogs. The largest piece of gold found in the island was that of Bonnaventura, on the river Jayna, which is reported to have been worth three thousand six hundred Spanish dollars. The leprosy is so common, that two public lazarettoes are provided for the reception of those afflicted with it.

Proposed Route of the United States Mail, from Athens to New-Orleans.

The course of the mail from Washington, southwestwardly to Athens, in Georgia, is well known, as being de-

lineated on Mr. Bradley's excellent map. For the purpose of communicating freely with the southern settlements on the Missisippi, and establishing a regular intercourse by post, Mr. Granger, the Post-Master-General, has proposed to convey letters by a new road, to be cut through the wilderness, with the following directions and distances:

	Miles.
From Athens, by the high shoals of Apalachy, to Coweta,	130
Thence to Fort Stoddert,	250
Thence to Orleans,	220
	600

On the first part of the route, between the high shoals and Coweta, there were twenty-one creeks to be passed, but all of them are narrow enough to be reached from side to side by a fallen tree, on which the rider may cross with the mail on his back, and swim his horse across on the lower side. The woods are thick. The next portion of the proposed road has much thinner forest, and fewer water-courses; but the most material obstructions are found on the third part. The stages may be enumerated as follows:

	Miles.
From Fort Stoddert to Dog River,	25
to Pascaguola,	35
to Lucar River,	19
to Houma,	10
to St. Peter's Creek,	20
to Hammock River,	15
to Log Creek,	8
to Wolf River,	12
to Catahola,	12
to Pearl-River,	12
to Orleans,	52
	220

The estimated expense of opening the whole of this road for a horse path, is six thousand and four hundred dollars. The computed distance from Washington to Orleans, by the way of Nashville and Tennessee, is one thousand four hundred and seventy-two miles, while that by the new proposed conveyance will be but one thousand one hundred and fifty-two, shortening this route by Athens, and on the eastern side of the great chains of mountains, three

hundred and twenty miles. This will be an important saving of labour, time, hazard, distance and expense.

Hydrographical Survey of the Coast of North-Carolina.

The intricate and dangerous navigation of the coast of North-Carolina has long been terrible to mariners. With the exception of Nantucket shoals, it is believed no part of the American coast is so distinguished for shipwrecks as the shoals of Cape Hatteras, Cape Lookout, and the Frying Pan. The gulf stream runs near the coast off Cape Hatteras; the current is strong, and, at a short distance from the shoals, the water is unfathomable. For about fifty leagues, the shore is inhospitable, and furnished with no more than two or three considerable openings for harbours. In addition to which, the atmosphere thereabout is remarkable for its variable and stormy character. For the purpose of obviating as far as possible the miseries incidental to coasting vessels and others navigating this fearful tract of ocean, Captain Jacob Crowninshield, Chairman of the Committee of Commerce and Manufactures, made an able and patriotic report to the House of Representatives in Congress, on the 27th of February, 1806. In this he took an enlarged view of the subject, and of the errors and defects in the present charts, by which our masters of vessels are governed. He recommended an entire new survey of our maritime regions, from the confines of New-Brunswick, in the north, to the extremity of Louisiana, in the south; and it is truly to be hoped, that speedily Congress may order this to be done. For the present, however, a bill was passed pursuant to Mr. C.'s proposal, directing a survey of the coast and shoals of North-Carolina to be made under the direction of the Treasury, from Cape Hatteras to the Frying Pan inclusive, with an opinion on the practicability of erecting a Light-house, lighted beacon, or buoy, on either of the shoals, for the greater security of lives and property. We understand that Commissioners are now actually engaged in performing this important service.

Resemblance between the Salt Lake of Mexico, and the Lake of Natron in Egypt.

The city of Mexico, in New-Spain, is probably the largest and most populous in America. It is reported to contain two hundred and fifty thousand inhabitants. Cool and pure water is brought to it from the mountains in aqueducts of

great expense and magnificence. Several rivers, which naturally emptied into the lake, have been furnished with artificial works, to turn away their waters toward the bay of California, when the lake is full, and a further addition to its quantity would inundate the city, which is built but a few feet above its level; and in dry seasons, when the water of the lake is low, these rivers can be turned into the great reservoirs, to prevent the injurious consequences of excessive evaporation.

These vast improvements do great honour to the police of that busy and manufacturing town. But, besides the precautions so wisely taken to secure a supply of fresh water from the country, and to keep down the noxious effluvia that might exhale from an extensive surface of denuded mud, the Spaniards have profited, as the Indians had done before them, by the *saltness of the lake*, to secure health to their populous metropolis. This is constructed of lime-stone, and quick-lime is plentifully employed to consume the bodies of the dead.

The fact has long been known, that the lake of Mexico was salt. Some imperfect accounts of it have been published in Europe, but still the information we have is very imperfect. Mr. T. Morgan, who spent about two years in and near Mexico, relates, that both muriate and carbonate of soda are obtained from the water of the lake. The dry season (when also the rivers, if necessary, may be turned away) is the time for collecting the salts. As evaporation goes on, large surfaces of the bottom are laid bare. The water is every where shallow, and, during a drought, thousands of acres appear above the surface. All these naked spots are covered with a saline incrustation. When the earth of the bottom is so impregnated, salt is taken in its moist state, and lixiviated with the lake water in a particular manner; it affords the muriate of soda, and is taken into the King's magazines, to be sold out to the people for culinary purposes, with a duty upon it. A large revenue, or gabelle, is thus collected; that part of the dried surface which is covered with a white and thick crystallization is pared, for the purpose of gathering the alkali for the soap manufacture. From this source are obtained the exceedingly great supplies of soda, which are employed in preparing one of their staple commodities, *hard or Castile soap.* This is exported to all parts of the province, and to more distant places. From the facts which have come to our knowledge,

it appears that there is a great resemblance between the salt lakes of Mexico and those of Egypt; and for the supposed process, whereby common salt is spontaneously decomposed and turned to native alkali, we refer to our Hex. i. vol. iv. p. 82.

Forsyth's Discovery, that Alkaline dressings are very useful and highly antiseptic in vegetable Surgery.

Frequently in the course of our work have pot-ash, soda, lime, and ammoniac been recommended for their antiseptic qualities. When putrefaction assumes its most destructive character, it is accompanied with acidity. When the volatile alkali is the product of corruption, the septic process furnishes the corrective of its own mischief. But the most unhappy condition of a morbid part, is where a putrid sourness is one of the consequences and accompanyments of organic decay. (See Med. Rep. Hex. i. vol. iii. p. 309.) That this is true in animals has been long ago proved; yet it has not been so extensively known or acknowledged, that the same rule obtains in vegetables. In our Med. Rep. Hex. i. vol. ii. p. 351, we noticed the dry-rot in timber, which alkalies would stop; and in Med. Rep. Hex. i. vol. iv. p. 189, we recited experiments that the spontaneous rotten wood of the American forests contained not alkaline, but acid matter. Many other observations have confirmed this remark, and exhibited strongly the analogy between plants and animals. Latterly, this doctrine has been illustrated and confirmed in its application to vegetables, by the experienced and celebrated William Forsyth, gardener to the British king. He was convinced of the existence of an acid, and, in some cases, of a strong one too, in the trunks and boughs of cankered or gangrened trees. And the plaster which he made, and applied with unparalleled success, to cure these diseases of fruit and forest trees, is of a quality to counteract this predominating sourness, to which decaying wood, as well as putrefying flesh, is prone.

His alkaline and antiseptic composition, for stopping the rot and canker in trees, is made according to the following receipt: Half a bushel of wood-ashes, half a bushel of lime-rubbish of old buildings, (that from the ceiling of rooms, he says, is preferable, but if it cannot be got, common chalk or lime, after having been slaked a month, will do), and a bushel of pit or river sand; sift them fine, and work them well together with a bushel of fresh cow-dung, using first the

spade, and afterwards a wooden beater, to render the composition smooth like fine plaster for walls.

To apply this mixture, all the rotten and decayed wood must first be cut away to the quick, and removed. The plaster must then be applied about the eighth of an inch in thickness, and powdered over with a composition of dry wood-ashes, mixed with a sixth part of the ashes of burned bones. When spread over the stumps of felled trees, an equal quantity of powdered alabaster (gypsum) should be sprinkled on with the other ingredients, to resist rains the better.

The best way of applying the alkaline antiseptic composition, is by means of a painter's brush dipped into it when in a soft or semi-fluid state. To this consistence it must be reduced, by mixing it with a sufficient quantity of urine and soap-suds. It may then be applied one coat over another, until it is sufficiently thick. The powder of wood-ashes and calcined bones is to be applied over it as before, and patted on with the hand.

Mr. Forsyth declares he has proved the practical efficacy of the plaster and liniment on elms, oaks, apricots, plums, peaches, nectarines, cherries, apples, pears, vines, figs, quinces, gooseberries, currants, barberries, mulberries, services, almonds, filberts, hazlenuts, chesnuts and walnuts; and after having been convinced of its great efficacy in trees affected with ulcers, gangrene and mortification, he has applied it with encouraging success to fresh wounds, especially by trimming, grafting, and inoculating.

By the application of this remedy, he promotes a rapid reproduction of sound and healthy wood, filling up the rotten and diseased holes. He cures the diseases of canker, scabbiness, and gum. And he restores to old and exhausted trunks and roots, so much juvenile vigour, as to make them afford a luxuriant growth of new wood, and a plentiful crop of excellent fruit, in both respects surpassing the powers of young trees.

The remarkable cures performed by Mr. F. on the King's garden-trees, induced the commissioners of the land-revenue-office, to have something done on the subject of preserving the oaks in the royal forests from decay. In consequence of the representation of these officers, the House of Commons passed a resolve, encouraging an inquiry to be made for ascertaining the virtues of the remedy. Accordingly, a committee of twelve noblemen and gentlemen were appointed to investigate the matter. After an examination

made, they reported their conviction, that the discovery would be highly beneficial both to individuals and the public. In consequence of which, for a reward of four thousand pounds sterling, the inventor disclosed, in May, 1791, his composition, and the mode of applying it. We are glad to find the Messrs. Whitings, of Albany, have given an handsome edition of this excellent performance in 1803, and that P. W. Yates, Esq. has enriched it with an instructive, practical, and recommendatory memoir.

Batt's Memoir on the Yellow Fever of Genoa.

Mr. Madison, the Secretary of State, has received from William Batt, of Genoa, an Italian pamphlet on the yellow fever of that Mediterranean city. On examining it since its transmission to the Editors of the Medical Repository, we find the writer to state a distinction somewhat novel between the *yellow contagious fever*, called, *typhus icteroides*, and the yellow remitting fever, which, though very mortal, is not conatgious at all.

His piece is entitled, *Alcuni detagli sulle Febre gialla Contagiosa, raccolti da varie sorgenti*, &c. It was printed at Genoa, in November, 1804. And he contends, that the form of distemper which prevailed then, was alarmingly contagious, and required the same means of prevention that are employed against the plague. To Americans, who entertain a different opinion of the contagiousness of the plague from that which prevails in the south-western corner of Europe, this mistaken idea does not possess much weight.

The disease is described, as Mr. B. relates, not from books, but from actual observation. Vomiting was a frequent symptom, and the matter ejected was often dark coloured. We translate his words from p. 3 and 5 of the work. "A remarkable stage in the disease was marked by the appearance of a portion of bile with spontaneous puking, though this rarely happened earlier than twelve hours from the attack; for it more commonly kept off until after twenty-four hours had elapsed. It was sometimes still longer. The bile vomited up was first yellow, then green, and gradually became darker; while sickness at the stomach, anxiety and restlessness continued and increased. But as this dark vomiting did not stink of putrefaction, it is not to be considered as the true specific black-vomit, and, therefore, at this period, of less awful augury. The putrid black-vomit very seldom appears sooner than thirty-six hours from the

attack, nor later than forty-eight, or at most sixty. In a considerable number, however, it has been retarded until the fourth, and sometimes even to the sixth day. The appearance of black vomiting was a very bad prognostic, and the patient's chance was the better in proportion to the lateness of its appearance. The matter puked up became thicker as well as darker, so as to resemble the meconium of infants, and a similar matter was discharged by stool." At the beginning of what he calls the second stage of the disease, yellowness began in the eyes, and diffused itself over the neck, breast, and other parts, though it rarely invaded the skin universally. Few recovered after black-vomiting; fewer still after hiccough had come on, and none after ischury had manifested itself. Large ecchymoses appeared before death, and putrefaction very rapidly as soon as life was gone. These modern occurrences on the northern shores of the Mediterranean, have an almost exact resemblance to the causos with yellow skin and black vomiting described by Hippocrates.

Mr. B. recommends a thin mucilage of gum arabic, taken to the amount of eight ounces daily, as an admirable lenitive to the stomach and alimentary canal in yellow fever. It may, if needful, be soured with sulphuric acid. Dr. Marshall informed him, that he had once superintended a hospital at Gibraltar, in which thirteen individuals were treated for the yellow fever. The first eleven all died. To the twelfth, by mistake, very large quantities of a mucilage of gum arabic were given, and he recovered. The thirteenth was purposely, but quite empirically, treated in the same manner, and he too got well.

Medical Facts. By Dr. A. C. Willey, of Block-Island.

1. *Domestic Origin of Hooping-Cough.*

The tussis convulsiva, or hooping-cough, occurred here in April, 1805, and did not become wholly extinct till sometime in autumn. What rendered it particularly worthy of attention, was its being indigenous. It made its appearance over the greater part of the island at the same time, and was untraceable to any apparent source. The insulated situation of this place is extremely favourable to observations, and the detection of facts of this nature, without the danger of deception; and has afforded, in the present instance, a fair demonstration that the hooping-cough can originate without

contagion. Indeed I am inclined to believe, that the rise and progress of this epidemic disease does not depend so much upon contagion as is generally imagined. The universal belief that the system, during the operation of *pertussis*, generates a specific virus, capable of communicating the disease, seems to have prevented the mind from looking any further for a principle adequate to its production. But because the living system possesses the power of elaborating this virus, I know of no reason why we should deny its formation in the departments of inanimate nature. The laws of physiology and inorganic matter agree in the production of soda and lime; why not then in the generation of pertussic poison? That there *is* a principle, independent of contagion, capable of inducing this complaint, I feel fully convinced, not only from its origination on this island, but from the number of cases which I have seen in those who have never been exposed to contagion. This principle undoubtedly exists in the atmosphere, which it pervades to a certain extent; but what it is, and how formed, remains a curious subject for physical research.

2. *Free Use of Blood-letting and Mercury.*

Since writing the case of Mrs. Beckwith, (Med. Rep. Hex. ii. vol. iii. p. 128), I have met with another of a similar nature, the bowels being only more constipated. In this, venesection was used equally copious as in the other, and between ninety and an hundred grains of calomel exhibited. No salivation ensued, and the patient had a speedy recovery.

Academy of the Fine Arts of New-York.

A little after the time that Robert R. Livingston, Esq. was commissioned to Paris, as Minister Plenipotentiary in 1801, an association of gentlemen was formed in the city of New-York, to found an institution for cultivating the fine arts. An order was made out by this society, and forwarded to the Minister in France, for models of the best pieces of statuary which its metropolis contained. Accordingly the Laocoon groupe, the Capitoline Venus, the sleeping Androgyne, the petrified Niobe, and many more fine casts, executed in gypsum, were purchased, and arrived safe in New-York. Afterwards, the Emperor was pleased to manifest his munificence to the infant academy, by sending a donation of twenty-four volumes of the prints of antiquities and remains of taste and genius around Rome and in other

parts of Italy; an additional collection of busts and statues; and several port-folios of superb paintings. All these have been safely landed, and are now in the possession of the academy. To these has been added a fine painting in a sitting posture of the founder himself. The likeness is very expressive, and before him lies a sheet, on which are written these words, " Plan for establishing an academy of fine arts at New-York."

Instance of Longevity, (May, 1806.)

Abraham Moore, of the city of New-York, is now in the 102d year of his age. He was born in 1705, in the reign of Queen Anne, in the island of Jersey. His father was a Welshman, and his mother a French woman. He followed the employment of a seaman, in the coasting and merchant trade of France, until he came to New-York, in 1748, and probably might have obtained promotion had he not been too illiterate. He was at Carthagena when that place was attacked by the English Admiral Vernon, in 1739, during the reign of George II. He followed the sea for several years from the city of New-York. At the age of fifty-nine he was first married. He has since steadily pursued the occupation of a cartman, and commonly at the intervals of that employment worked in a garden. He quitted his horse and cart six years ago, but works daily with the spade and hoe. He has been remarkably temporate. His principal drink has been water. He tasted distilled spirits and strong liquor of any kind only as medicines. To the taste and flavour of rum he had so great a dislike, that he could not endure to drink water from a glass in which grog had been mixed. He was, in the earlier part of his sea-faring life, a great smoker of tobacco; but, on being reproved by his Captain, during a time of war, for striking fire, and often making a blaze merely to light his pipe, he threw his tinder-box, flint and steel overboard, renounced a practice so likely to betray their vessel to an enemy, and has rarely whiffed the fume of that plant during the last fifty years. For the greater part of this time the smell of burning tobacco has been very disagreeable to him; but he has been a constant chewer of the drug, and is so attached to the use of it to this day, that he is uneasy unless he has a quid in his mouth. His sight is so moderately bedimmed, that on a bright day he can read large bible print without spectacles. His hearing is but little impaired. His appetite is

good, and his taste and relish for food little or not at all impaired. He is not bald, but his hair is only thinned a little, and his locks are not more grey than those of many men at forty-five or fifty years old. He has always gone to bed and risen early. When he was well, and not interrupted, he went to sleep at eight o'clock, and got up by day-light. When I bade him good night, he opened the door for me, attended me through the yard, and shut the gate after me. He has had several severe fits of sickness, and, for several years, has been afflicted with the gravel.

Vondenvelden's Map of Lower Canada.

Messrs. Vondenvelden and Charland have published, in London, in a correct and handsome style, their map of Lower Canada, as announced in our Med. Rep. Hex. i. vol. iii. p. 203. It comprehends all the British country from the limits of Upper Canada to the gulf of St. Lawrence, and all the islands therein belonging to Lower Canada. This is a valuable addition to Smyth's map (of which we gave an account in Med. Rep. Hex. ii. vol. iii. p. 95), and to the geography of North-America. It is a matter of no small regret, that neither of these maps is to be bought at the stores of our booksellers. There cannot exist a doubt that the demand for them would authorize the publishers to send a consignment to New-York, that travellers, geographers, dealers in land, and all sorts of curious persons might have it in their power to become purchasers.

History of the Worm which spread Terror through New-York and the neighbouring States, in June and July, 1806.

There are times when mankind are easily frightened, and readily listen to stories tinctured with the marvellous. After the solemnity of the eclipse, on the 16th of June, and before the festivity of the 4th of July, there was a considerable dearth of foreign and domestic news. Nothing occurred either at home or abroad of sufficient moment to satisfy the public appetite. At this juncture a discovery was alleged to be made of a worm which infested the Lombardy poplars. This was, in fact, nothing new, as the creature had been observed years before. However, it passed for a new and hitherto unobserved animal, and was reported to be one of the most poisonous of all reptiles. Tales were propagated and extensively believed, that dozens of men, women, and

children had been killed by their bites; and that cats, dogs, and horses had fallen victims to their venom. There was a general panic. The greater part of the citizens were engaged in discussions about the "asp" (for so they named it) which lived on the poplars, and darted upon passengers; and some persons actually yielded to the delusion so far as to cut down their trees. The newspapers contained various accounts of the animal.

The author of all this fear and agitation was however nothing more than a strong and active caterpiller, which eventually changed into a species of moth. The reader will derive a tolerably correct idea of the ash-colour, the external habit and general figure of the worm, by examining the plate of the *Phalæna Fraxini*, *Clifden Moth*, or *Clifton Beauty*, figured and coloured in the twelfth volume of the Naturalist's Miscellany, by SHAW and NODDER. The *Phalæna Populi*, or December moth, figured and described in the ninth volume of DONOVAN's *Natural History of British Insects*, is a very different creature.

Some of these worms put into boxes after their season of eating was past, were observed to connect leaves together by webs, and cover themselves. They did not spin perfect cocoons of silk. In a few days they changed to a brown chrysalis; and so rapid was their further metamorphosis, that many of them had turned to the form of perfect imago, and were flying about, laying their eggs, and dying, during the first week in August. By the care and attention of Peter A. Schenck, Esq. a gentleman whose mind has long dwelt upon rural improvements and agricultural pursuits, the four forms of existence in which this animal appears were distinctly seen, and he exhibited to Dr. Mitchill the ovum, chrysalis and imago of the worm which had created such terrible apprehensions.

On examining the perfect and expanded animal, by the systematic rules of Professor DUMERIL, *the latest zoological methodist*, it evidently belongs to the *Chetocères*, or fourth family of the order Lepidoptera, in the class of insects. It is a species of his genus Phalæna, which is the fourth of the eight genera into which the family is subdivided. The natural marks and characters forbid it to be placed in either of his genera, of Bombyx, Sphinx, or Papilio. When the wings were spread, they measured more than three inches across. The anterior ones were dusky, and clouded on their upper sides. The posterior chiefly red, with black curved

marks, and a margin almost white. The under sides of the anterior wings were whitish, with three curvilinear dark transverse broad stripes. The under sides of the posterior ones were much like the upper, but fainter and less distinct. The eggs were flattish, round, and black.

New Physiological Opinions.

Professor Rush has kindly transmitted to Dr. Miller a small pamphlet, entitled, "*An Inquiry into the Functions of the Spleen, Liver, Pancreas, and Thyroid Gland;*" in which that learned physician delivers some new opinions. We are sorry our limits do not enable us to insert the performance at large. The following sketch, though entirely divested of the able reasoning and illustration by which the opinions are supported, will afford gratification to the reader.

"*Of the Functions of the Spleen.*

"Four uses have been ascribed to the spleen. It has been said to prepare the blood for the secretion of bile from it by the liver; to be the organ in which the red globules of the blood are formed; to be a counterweight to that of the liver on the left side; and, lastly, to afford an occasional supply of blood to the vessels of the stomach which secrete the gastric liquor when that viscus is unduly distended with food. If the use I am about to ascribe to the spleen be admitted, it will be unnecessary to state objections to the opinions which have been mentioned.

"I shall begin this inquiry by delivering the following proposition:

"All the motions which go forward in the human body are produced by external and internal stimuli. These stimuli exert their influence directly, or indirectly upon the blood-vessels. From innumerable causes they are liable to become *excessive* in their force. Such is the excess of this force, and such the frequency of its occurrence from exercise, labour, intemperance, passions of the mind, and disease, that a provision to defend the tender and vital parts of the body from the effects of this force, seems to be a necessary appendage to the body. This provision I believe to be the SPLEEN. [The opinion is afterwards unfolded by the author still further, by supposing this viscus to serve the blood-vessels as an occasional reservoir of their redundant motions and quantity of blood; by considering it as made up

chiefly of a texture, calculated promptly and freely to afford a receptacle for the blood, when exerted into tumultuous motions; and by styling it the *waste-gate* for the torrent of blood excited into action, by violent and excessive agitation of the blood-vessels.]

" How far the spleen may act by absorbing and suffocating undue impressions upon the nervous system and the mind, I know not; but I think it probable it serves this important use in the animal economy.

" *Of the Function of the Liver.*

" The design of the liver I believe to be, to receive the blood from every part of the body, in order to subject that part of it which had not been completely animalized, or divested of its chylous properties, to a secretory process, and afterwards to pour the product of this secretion, mixed with the liquor of the pancreas, into the duodenum, to be absorbed, or otherwise taken up by the lacteals, and conveyed with the chyle from the stomach into the blood-vessels, in order to be completely converted into red blood, for the purpose of serving the various and important uses for which that fluid is intended in the human body.

" *Of the Function of the Pancreas.*

" The pancreas resembles the salivary glands in its structure; it secretes a liquor which possesses the same dissolving and animalizing properties as the saliva, and it pours this liquor so directly upon the hepatic bile in the common duct, before it enters the duodenum, as to act upon it in a concentrated state, and thereby to change it into perfect chyle. By ascribing this use to the pancreas, we rescue it from its insignificant office of performing a work of supererogation only to the saliva and gastric juice, and give it a little sovereignty or independent jurisdiction in the animal economy.

" *Of the Use of the Gall-Bladder and the Cystic Bile.*

" From the situation of the gall-bladder, from the acute angle its duct makes with the hepatic duct, where they form the ductus communis, and from the circumstances which influence its fulness and depletion, I believe it to be intended wholly to serve the same purpose with respect to the liver, which the spleen serves to the whole sanguiferous system,

that is, to afford a receptacle for redundant bile, and thereby to prevent the obstruction of the hepatic bile into the duodenum, and its regurgitation into the pori biliarii.

"*Of the Functions of the Thyroid Gland.*

"The design of this gland I believe to be, to defend the brain from the morbid effects of all those causes which determine the blood into it with unusual force."

The Rev. D. B. Warden, Secretary to the American Minister at Paris, has favoured Dr. Miller with the following Articles of Intelligence.

Of the Nature of the Air in Places where many People are assembled.

It is now known that the purity of the atmospheric air varies little. In the Theatre François (Paris) when there was a crowded audience, the air of the pit and of the upper part of the hall *(salle)* was taken for the purpose of ascertaining their purity.

These airs scarcely troubled lime water.

The atmospheric air gave of oxygen	0,210
Upper part of the hall, of oxygen	0,202
Pit gave of oxygen	0,204

Seguin has also analyzed the air of the wards of Hospitals, which had been kept closely shut during twelve hours. This air had an infected smell, was almost insupportable, notwithstanding he found it to be almost as pure as the atmospheric air. Fontana, at the Hotel-Dieu of Paris, had before found the same result.

From these experiments we ought to conclude, that the uneasiness we feel in a confined place, or where many people are confined, does not proceed from a defect of oxygen. It ought rather to be ascribed to the influence of particular effluvia, such as those of a pestilential nature.

Messrs. DUMERIL and DESGENETTES, Professors of the School of Medicine at Paris, who were sent by this government to Spain, to inquire into the nature of the epidemic which lately prevailed in that country, have returned to this city. They are preparing a memoir on the subject, which, I understand, is to be transmitted to the minister of the interior. Owing to this circumstance, some time may elapse before it is presented to the public.

Caldwell's Medical Classics

We announce with great pleasure, that Dr. Caldwell, of Philadelphia, has issued proposals for re-publishing, under the title of MEDICAL CLASSICS, the following celebrated works in medicine, viz. *Hillary* on the Diseases of Barbadoes; *Pringle* on the Diseases of the Army; *Huxham* on Fevers; *Cleghorn* on the Diseases of Minorca; *Lind* on the Diseases incident to Europeans in hot Climates; *Hunter* on the Diseases of the Army in Jamaica; *Sydenham*'s Works; *Clarke* on the Diseases of long Voyages; *Jackson* on the Fevers of Jamaica and America; *Mosely* on Tropical Diseases; *Blane* on the Diseases of Seamen, and *Alibert* on Malignant Intermittents. The whole to be accommodated by notes to the present improved state of medical science, and particularly adapted to the practice of medicine in the United States.

It is scarcely necessary to add, that the medical writers here selected by Dr. Caldwell, are of the highest character, that they abound in that particular kind of instruction which is most interesting to this country, and that it is the duty of every practitioner of physic in the United States to possess and peruse them with the greatest attention.

Translation into French of Dr. Miller's Letter to Governor Lewis.

General Armstrong, Minister Plenipotentiary of the United States of America near the French government, in a letter to Dr. Miller, acquaints him, that his "*Report on the Malignant Disease which prevailed in the City of New-York, in the Autumn of* 1805," addressed to Gov. Lewis, is undergoing a translation at Paris, by Mr. Lasteyrie, a gentleman of literary distinction, and will be inserted in Mons. DUMERIL's *Report to the Emperor, on the Spanish Epidemic of* 1804, which is expected to be speedily published.

Pascalis's History of the Yellow Fever.

Dr. Felix Pascalis, now of the city of New-York, has lately issued proposals for publishing by subscription, a work, to be entitled, *Pyrroloimogia, or Inquiries into the Pestilence called Yellow Fever*, containing the history of its symptoms and prevalence in different parts of the world; a comparative statement of all controversies respecting its origin, modes of propagation and treatment; with an attempt

towards a new theory of the electrical phenomena and Galvanic influence arising from terraqueous and putrid exhalations, which explains the cause of pestilential diseases, their remedies and preventives.

Ewell's Discourses on Matter.

This work, of which we announced the plan in Med. Rep. Hex. ii. vol. iii. p. 234, is now in the press, and is expected to appear sometime in October next.

Bell's Principles of Surgery.

Dr. Ewell has issued proposals for publishing Mr. *Bell's* "*Principles of Surgery, as contained in his Discourses on the ordinary Duties of a Surgeon, and a System of Surgical Operations.*" It is the intention of Dr. Ewell to add critical and explanatory notes, and an Appendix, containing the improvements which have been made in Surgery by American gentlemen; and, in order to bring the work within the purchase of most practitioners, he means to divest it of the notes in foreign languages, and of other matter which he deems useless, and to condense the whole in one large royal octavo volume of about seven hundred pages.

Ricketson on the Preservation of Health.

Dr. Shadrach Ricketson, late of Dutchess County, but now of this city, has in the press, a work which he entitles, "*Means of preserving Health and preventing Diseases, founded principally on an Attention to Air, Climate, Drink, Food, Sleep, Exercise, Clothing, Passions of the Mind, and Retentions and Excretions. With an Appendix, containing Observations on Bathing, Cleanliness, Ventilation, and Medical Electricity, and on the Abuse of Medicine. Enriched with apposite Extracts from the best Authors. Designed not merely for Physicians, but for the Information of others.*" It is expected this work will be given to the public in the course of a few weeks.

Coxe's American Dispensatory.

Mr. Dobson, of Philadelphia, has just published an edition of Dr. Duncan's Edinburgh Dispensatory, under the title of "*The American Dispensatory,*" with alterations and additions by John Redman Coxe, M. D.

APPENDIX.

Correct List of all the Patents that have been taken out of the Office of the Secretary of State, from July, 1790, to the present Time, specifying the Subject of the Patents, with their Dates, and the Names of the Patentees.

1790.

MAKING pot and pearl ashes, Samuel Hopkins, July 31. Manufacturing candles, Joseph Stacey Sampson, Aug. 6. Manufacturing flour and meal, Oliver Evans, Dec. 18.

1791.

Punches for types, &c. &c. Francis Bailey, Jan. 29. Improvement in distilling, Aaron Putnam, Jan. 29. Driving piles for bridges, John Stone, March 10. Threshing grain and corn, machine for, Samuel Mulliken, March 11. Breaking and swingling hemp, &c. Samuel Mulliken, March 11. Machine for cutting and polishing marble, &c. Samuel Mulliken, March 11. Machine for raising a nap on cloths, &c. Samuel Mulliken, March 11. Machine for spinning flax, hemp, &c. George Parkinson, March 17. Improvement in tide mills, Jonathan Dickerson, July 30. Machine for making nails, Samuel Briggs, sen. & jun. Aug. 2. Machine for threshing wheat, &c. William Thomson, Aug. 2. Diminishing the friction of spindles, Robert R. Livingston, Aug. 4. Making the extracts of barks, John Biddis and Thomas Bedwell, Aug. 10. Improved bedstead, Ludwig Conrod Kuhn, Aug. 10. Manufacturing boots, Peter Gordon, Aug. 10. Propelling boats by cattle, Henry Voight, Aug. 10. Manufacturing gunpowder, Henry Keyser, Aug. 10. Horizontal hollow water-wheels for mills, James Macomb, Aug. 26. Improvement of Dr. Barker's mill, James Rumsay, Aug. 26. Improved mode of working mills, James Rumsay, Aug. 26. Improvement of Savary's steam-engine, James Rumsay, Aug. 26. Bellows, James Rumsay, Aug. 26. Generating steam, James Rumsay, Aug. 26. Propelling boats or vessels, James Rumsay, Aug. 26. Propelling boats, &c. by steam, &c. John Fitch, Aug. 26. Improved boiler of the steam-engine, Nathan Read, Aug. 26. Improvement in distilling, Nathan Read, Aug. 26. Boiler for generating steam, John Stevens, jun. Aug. 26. Improvement in

Captain Savary's steam-engine, John Stevens, jun. Aug. 26. Application of steam to work bellows, John Stevens, jun. Aug. 26. Improvement of Savary's steam engine, Englehart Cruse, Aug. 26. Machine for cleaning docks or harbours, Peter Zacharie, Nov. 24. Machine for spinning cotton, William Pollard, Dec. 30.

1792.

Cleansing whale oil, Benjamin Folger, Jan. 2. Spinning and twisting thread, Obadiah Herbert, Jan. 28. Steam Jack, John Bailey, Feb. 23. Hardening and tempering steel, David Hartley, Feb. 24. Improvement in making bricks, David Ridgeway, March 7. Canvass conductor to be used when houses are on fire, Samuel Green, March 28. Weaving of wire, Timothy Kirk and Robert Leslie, May 9. Machine for sawing wood and bark, Thomas Farrington, May 9. Preservation of plants from frost, &c. George Morris, July 10. Machine called " the wheel of knives," for shearing and raising the nap on cloths, Samuel G. Dorr, Oct. 20. Hand-mill for picking millstones, Solomon Hodge and Jonathan Dorr, Oct. 23.

1793.

Improved machine for manufacturing tobacco, James Caldwell and Christopher Batterman, Jan. 26. Improvement in wind-mills, Joseph Pope, Jan. 26. Manufacturing bricks, Christopher Colles, Jan. 26. Improved mode of turning a spit, Samuel Morey, Jan. 29. Double pendulum for ships, Robert Leslie, Jan. 30. Clock pendulum, Robert Leslie, Jan. 30. Double pendulum, Robert Leslie, Jan. 30. Manufacturing oiled silk and linen, &c. Ralph Hodgson, Feb. 1. Manufacturing rhus or sumach, Richard Rosewell Saltonstall, Feb. 28. Improvement in paper-moulds, John Carnes, jun. April 11. Furnace for pot and pearl ashes, Edward Ryan, April 29. Moulds for claying sugar, Jonathan Williams, jun. March 13. Manufacturing rhus or sumach, Richard Rosewell Saltonstall, May 1. Stove of cast iron, Robert Heterick, June 11. Applying and regulating the sails of ships, boats, &c. Joseph Stacey Sampson, July 5. Manufacturing brick and pantile, Samuel Brouwer, Aug. 17. Machine for propelling vessels, &c. Abijah Babcock, Dec. 2. Disputed claim for a machine to work in a current of water, &c. decided in favour of John Clarke, Daniel Stansbury, Apollos Kinsley, John Clarke, Dec. 31.

1794.

Manufacturing nails, Thomas Perkins, Feb. 7. Weaving

and beating sail duck, James Davenport, Feb. 14. Improvement in distilling spirituous liquors, Joseph Simpson, March 4. Round saw, Zachariah Cox, March 14. Machine for ginning cotton, Eli Whitney, March 14. Mode of preventing the progress of fire, Benjamin Taylor, March 23. Improvement in manufacturing paper, &c. John Biddis, March 31. Composition for flooring houses, &c. Richard Robotham, April 12. Improvement in carriages, to be propelled by the mechanical powers, John J. Staples, April 25. Machine for threshing grain, &c. William Hodgson, April 28. Construction of bellows, James Drake, May 19. Manufacturing of candles, Richard Robotham, June 2. Manufacturing cordage, George Parkinson, June 16. New mode of grinding bark, John Markley, July 19. Improvement in the method of working pumps, Elisha Rigg, July 29. Improvement in a steam still, Alexander Anderson, Sept. 2. New mode of propelling vessels, Benjamin Wynkoop, Sept. 13. Mode of making salt, James Fennel, Sept. 24. Improvement in making bricks, Apollos Kinsley, Feb. 1, 1793. Construction and tone of bells, Robert Leslie, Feb. 2, 1793. Improvement in hydraulics, Joshua Hatheway, Oct. 29. Improvement in a threshing machine, James Wardrop, Nov. 5. Improvement in stills, John Kincaid, Nov. 25. Tempering mortar and making bricks, Apollos Kinsley, Dec. 20.

1795.

Machine for cutting nails, Jacob Perkins, Jan. 16. Improvement in the mode of breaking hemp and flax, Samuel Mulliken, Jan. 15. Improvement in shearing woollen and other cloths, Samuel Kellogg, Jan. 31. Machine for cutting nails, Josiah G. Peerson, March 23. New mode of catching fish, Joseph Ellicott, March 25. Improvement in the application of steam, Samuel Morey, March 25. Construction of a cabouse, John Youle, May 25. Improvement in the manufacturing of cordage, John Pitman, May 25. Improvement in propelling boats, Daniel Keller, May 25. Propelling boats, &c. with horses, William Peter Sprague, June 19. Nautical ventilators, Benjamin Wynkoop, June19. Tinned sheet copper condensing worm, John Taylor, June 30.

1796.

Improvement in making nails, Jared Byington, Jan. 15. Improvement in sawing and polishing marble, &c. Jonathan Dickerson, Jan. 9. Manufacturing seal skins, James Eaton, Feb. 16. Removing pains, &c. by metallic points, Elisha Perkins, Feb. 19. Raising water by wind, Samuel Morey,

April 11. Machine for cleaning wheat, &c. &c. Benjamin Tyler, April 15 Improvement in tanning leather, James Davis, April 14. Improved mode of forming a yellew colour, Thomas Bedwell, April 20. Composition of "*bilious* pills," Samuel Lee, jun. April 30. Machine for cutting nails and brads, Peter Zacharie, May 4. Improvement in manufacturing sumach, Joseph Hillard, May 12. Improvement in bolting-cloths, Robert Dawson, May 12. Improvement in the cotton gin, Hodgen Holmes, May 12. Cleaning clover and other seeds, &c. Jonathan Roberts, jun. Feb. 13. Improvement in piano fortes, James Sylvanus M'Lean, May 27. Improvement in burr mill-stones, Oliver Evans, May 28. New invented steam-engine and boiler, Elijah Backus, May 31. Stays for removing distortions in the spine, Lunden M'Kechnie, July 1. Improvement in sawing and polishing marble, &c. Joseph Francis Mangin, July 2. Machine for scouring rice and other grain, Robert Grant, Oct. 17. Improvement in making salt, George James, Nov. 16. Improvement in manufacturing pot-ash, Edward Ryan, Nov. 16. Improvement in concentrating the volatile parts of calcareous earth, stones, &c. John Fowler, Nov. 16. Improvement in manufacturing cut nails, Peter Cliff, Nov. 16. Machine for heading and cutting nails, Isaac Garretson, Nov. 16. Improvement in a printing-press, Apollos Kinsley, Nov. 16. Improvement in splitting sheep skins, James Stansfield, Nov. 16. New method of ruling books and paper, Mark Isambard Brunel, Nov. 16. Improvement in pumps, Theobald Bourke, Nov. 16. Manufacturing pot-ash, William Frobisher, Nov. 17. Improvement in forging bolts and round iron, Clement Rentgin, Nov. 17. Improvement in a loom for weaving cloth, Amos Whittemore, Nov. 17. A "preambulator" for measuring a ship's way, Amos Whittemore, Nov. 19. Machine for cutting nails, Amos Whittemore, Nov. 19. Improvement in manufacturing nails, John Bigelow, Nov. 19. Improvement in cutting and heading nails, &c. George Chandlee, Dec. 12. Conjurer for cooking and boiling, Thomas Passmore, Dec. 23. Improvement in manufacturing cut nails, Daniel French, Dec. 23. Improvement in manufacturing wrought nails, Daniel French, Dec. 23. Improvement in heading nails, Jared Byington, Dec. 23. Improvement in heading nails, Jason Frost, Dec. 23. Machine for separating scoured rice, James Dellet, Dec. 23. Improvement in ginning cotton, Robert Watkins, Dec. 23. Improvement in ginning cotton, John Murray, Dec. 23.

1797.

Improvement in making soap, John Nazro, Jan. 6. Extracting alkali from marine salt and kelp, John Nazro, Jan. 6. Improvement in bridges, Charles Wilson Peale, Jan. 21. Improvement in cutting and heading nails, James Spence, Feb. 16. Improvement in cutting and polishing marble, &c. Joseph F. Mangin, Feb. 16. Improvement in stoves, James M'Callmont, Feb. 20. Improvement in scouring or skinning rice, Samuel Mulliken, Feb. 20. Improvement in chimneys, Richardson Stuart, Feb. 24. Improvement in bridges, John Fowler, Feb. 24. Improvement in cutting and heading nails, Jesse Kersey, Feb. 24. Improvement in mixing colours and painting, Lawrence Allwine, Feb. 24. Improvement in stoves, Thomas Hirst, March 11. Machine for threshing wheat, &c. William Booker, March 11. Improvement in a tide-water-wheel, Silas Betts, March 18. Improvement in washing clothes, Nathaniel Briggs, March 28. Improvement in stoves, Caleb Wheaton, March 29. Improvement in fire engines, Jesse Kersey, April 13. Improvement in boring pumps, Caleb Leach, April 13. Combination of astringent woods and vegetables in distilling, &c. Fitch Hall, April 17. Improvement in propelling boats and vessels, by steam engines, Jehoshaphat Starr, April 28. Improvement in propelling carriages, William Faris, April 29. Antibilious pills, Benjamin Duval, May 3. Improvement in constructing and rigging vessels, Isaac Garretson, May 29. Improvement in bridges, John Stickney, June 3. Improvement in manufacturing wool-cards, &c. Amos Whittemore, June 5. Improvement in looms, David Grieve, June 8. Raising a nap on cloths, Walter Burt, June 23. Rollers for slitting and other mills for rolling iron, Benjamin Seymour, June 26. Improvement in straitening iron hoops, Benjamin Seymour, June 26. Pundulous bellows, for pumping ships, Benjamin Wynkoop, June 26. Improvement in making candles, Joseph Stacey Sampson, June 26. Improvement in ploughs, Charles Newbold, June 26. Mode of preserving butter, Moses Johnson, June 30. Improvement in forming bricks, tiles, &c. John Hawkins, July 11. Improvement in extracting teeth, Thomas Bruff, July 1. Improvement in making shingles, boards, &c. Bill Jarvis, July 8. Improvement in cutting tobacco, Apollos Kinsley, August 12. Improvement in cutting and heading nails, Jonathan Nevil, Aug. 12. Improvement in saw-mills, Henry Dulheuer, Aug. 18. Improvement in mills, Jonathan W. Curtiss, Aug. 24. Improvement in fire-places, Charles W. Peale, Nov. 16.

Improvement in saddles, Thomas Stickney, Nov. 16. Improvement in breaking dough and paste, Daniel Pettibone, Nov. 16. Improvement in threshing grain, Richard R. Eliot, Nov. 16. Improvement in clocks, time-keepers, and watches, Eli Terry, Nov. 17. Improvement in making window sashes, Stephen Parsons, Nov. 20. Machine for propelling boats, John Martin, Nov. 21. Improvement in bridges, Timothy Palmer, Dec. 17. A spiral wheel for working in tide water, Elias Ring, Dec. 10. A soap-stone stove, William Payne, Dec. 10. Improvement in making nails, Lester Fling, Dec. 19.

1798.

Machine for cutting and heading nails, Nathan Read, Jan. 8. Improvement in grinding coffee, Thomas Bruff, sen. Jan. 8. Machine for printing paper, leather, &c. John Dixey, Jan. 24. Improvement in cutting and pointing comb-teeth, Isaac Tryon, Feb. 22. Improvement in windmills, Charles Holden, March 15. Machine for dipping candles, Samuel Blydenburg, March 22. Steam saw-mill, Robert M'Kean, March 24. Mill for sawing boards, Aaron Clarke, March 30. Screw engine for throwing water, Elijah Ormsbee, March 21. Improvement in raising water from fountains, John Manning, April 10. Regulating the action of the tide on his spiral wheel, John Martin, April 27. Machine for raising water, Mark Isambard Brunel, April 27. Machine for removing rocks, &c. Isaac Lazell, May 18. A double-steam engine, James Smallman and Nicholas J. Roosevelt, May 31. Machine for threshing wheat, &c. Thomas C. Martin, June 2. Machine for propelling vessels, Charles Stoudinger, June 2. Water-wheel flume for large streams, Walter Brewster, June 7. An oblique pump, Jonathan Hunt, June 7. "A tallow lamp," John Love, June 11. A composition for pills, Samuel Cooley, June 6. Improvement in stoves, John W. Godfrey and William Lane, July 14. Method of preserving vessels, &c. from worms, Raphaelle Peale, Dec. 14. Improvement in making bread, William Banks, Dec. 14. Machine for cutting screws, David Wilkinson, Dec. 14. Improvement in manufacturing paper, Cyrus Austin, Dec. 14. Pipes and pumps for conveying water, Mark Reeve, Dec. 14. Machine for clearing docks and harbours, Stephen Colver, Dec. 14. Machine for heaving down vessels, raising weights, &c. Stephen Colver, Dec. 14.

1799.

Machine for raising water, Joseph Huntley, Jan. 10.

Machine for writing with two pens, Mark Isambard Brunel, Jan. 17. Method of regulating wind-mills, Thomas Thompson, Jan. 3. Machine for making nails, Seth Hart, Jan. 4. Machine for manufacturing salt, John Sears, Jan. 24. Improvement in a coal stove, Henry Abbott, Jan. 24. Machine for cultivating corn, beans, &c. Eliakim Spooner, Jan. 25. Machine for planting corn, beans, &c. Eliakim Spooner, Jan. 25. Improvement in a horizontal water-wheel, Ezekiel Reed, Feb. 14. Improvement in steelyards, Benjamin Dearborn, Feb. 14. Preparation of steel for cutting glass, Benjamin Du Val, Feb. 14. Improvement in making nails, Jacob Perkins, Feb. 14. A flax and hemp mill, Benjamin Tyler, Feb. 26. Improvement in casting iron, William Hancock, Feb. 26. Extracting oil from cotton seeds, Charles Whiting, March 2. Improvement in sharpening axes, &c. John Shotwell, March 16. A check to detect counterfeits, Jacob Perkins, March 19. Improvement in propelling boats, Josiah Shackford, March 21. Machine for dressing cloth, Isaac Sandford, March 27. Obtaining force from water by steam, Samuel Morey, March 27. Machine for making combs, Phineas Pratt, April 12. Improvement in his water engine, Samuel Morey, April 24. Double-centered mill for wind or water, Benjamin Dearborn, April 30. New method of cutting clay for tiles, Andrew W. Duty, May 8. Machine for raising water, William Faris, May 17. " Machine to keep a ship's distance at sea," Chester Gould, May 27. Improvement in making ropes, Michael Wigglesworth, June 26. " Bilious pills," Samuel H. P. Lee, June 26. Improvement in washing clothes, Ezra Weld, June 26. Napping hats, James Long, Aug. 5. Purifying spermaceti oil, Richard Robotham, Aug 14. A capstan fire-engine, Samuel Eli Hamlin, Aug. 30. Federal baloon, Moses M'Farland, Oct. 28. Manufacturing of paper, Robert R. Livingston, Oct. 28. Universal pump, Apollos Kinsley, Oct. 28. Boat for descending rapid streams, Daniel Keller, Nov. 5. Pumps for ships, mines, &c. John Stickney, Nov. 29. Saw-mill, Thomas Payne, Dec. 2. Extracting oil from Palma Christi, John G. Gebhard, Feb. 4. Hawks' pills, John Hawks, Dec. 14. Runners and bows for sleighs and sledges, Abijah Wilder, Dec. 14. Improvement in mills, Havilard Chase, Dec. 16. " Effeminate ropery for spinning rope yarn," John Pitman, Dec. 24.

1800.

Improvement on stoves and grates, Oliver Evans, Jan. 16. Machine for spinning rope yarn and twine, Stephen Gorham,

Feb. 4. Composition to preserve wood, brick, &c. Silas Constant, Feb. 4. Machine for pounding rice, gunpowder, &c. Benjamin Bolitho, Feb. 7. Metal boxes for wood or iron to turn in, William Shotwell, Feb. 7. Improvement in piano fortes, John J. Hawkins, Feb. 12. Method of covering salt vats from the weather, Hattil Killey 2d, Feb. 12. Extracting the essence of sumach, fera, &c. for tanning, Nathaniel Ladd, Feb. 12. Engine for throwing water, Patrick Lyon, Feb. 12. Raising or lifting hides in tanning, James Cox, Feb. 20. Improvement in grist mills, Benjamin Tyler, Feb. 20. Improvement in dying blue, John Percy, March 3. Lathe or loom for weaving, William Harris, March 15. Machine for manufacturing sumach, Comfort Hoyt, jun. April 7. Improvement in coach collars, William Hottensteen, April 10. Stop cock, Peter Walker, April 10. Improvement in the manufacture of boots and shoes, Dean Howard, April 10. Improvement in the elastic truss for ruptures, Silas Stone, May 6. Engine for reducing silk, cotton, worsted, cloth, and to their original state, to be manufactured, John Biddis, May 6. Silent moving timekeeper, Simeon Jocelin, May 8. Improvements in the construction of ships and vessels, Jeremiah Brown, May 14. Machine for making bricks and tiles, George Hadfield, May 15. Metal amulets, Edward West, May 19. Machine for splitting hides and skins, Thomas O. Harrison, May 19. Mould board of a plough, Robert Smith, May 19. Cogs, &c. for pullies, &c. William Shotwell, June 24. Machine for cutting tobacco, Peter Lorillard, June 28. Kiln for drying grain, James Deneale, jun. July 10. Improvement in burning lime, &c. Peter Lossing, Aug. 4. Machine for cooking, Frederick Butler, Aug. 22. Machine for cutting and heading nails, Frederick Young, Aug. 23. "Lavater," machine for washing and wringing clothes, Ezra Weld, Sept. 17. Machine for cutting tanner's bark, Jonathan Kilborn, Aug. 23. Improvements in chimneys, David Cooley, jun. and Gabriel N. Philips, Aug. 25. Improvement in manufacturing bricks, Richard Mansfield, Oct. 24. Raising water for mills, Aaron Brookfield, Oct. 24. Improvement in musical instruments, John J. Hawkins, Oct. 24. Telegraph (description) filed, Jonathan Grout, jun. Oct. 24. Obtaining force from water, with the assistance of steam, Samuel Murray, Nov. 17. Hanging windows without weights, William Young, Nov. 20.

(To be continued.)